Subscriptions for 1942 are now due

ENTOMOLOGICAL NEWS

DECEMBER, 1941

Vol. LII No. 10

CONTENTS

Williams—Notes on the Bionomics of Ataxia hubbardi Fisher in Illinois (Coleop.: Cerambycidae). 271
Darlington—The Insect Collection of Thaddeus W. Harris (1795-1856). 273
Knight—A Migratory Flight of Phoebis agarithe Bd. (Lepid.: Pieridae) 274
Prof. Funkhouser on a Collecting Trip 275
Forbes—What is Pseudomechanitis? (Lepid.: Nymphalidae). . . . 276
Rau—Migrating Butterflies, Libythea bachmanii larvata Stkr., in Texas. (Lepid.: Nymphalidae). 277
Hull—Some New Species of Syrphidae from Florida, Cuba and Brazil (Diptera). 278
Knull—A New Texas Agrilus (Coleoptera: Buprestidae). 283
Yellow Fever 284
Ahrens—Dragonflies New to the Mount Desert Island Region, Maine (Odonata). 285
Abbott—Why Does Gyrinus Circle? (Coleoptera: Gyrinidae) 287
Leech—The Dates of Publication of Two Articles on Coleoptera by John L. Leconte, Issued in 1845. 290
Current Entomological Literature 292
Title page to Volume LII. Index to Volume LII. 301

PHILADELPHIA, PA.
THE ACADEMY OF NATURAL SCIENCES,
1900 Race Street

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1
Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, by the American Entomological Society.

Philip P. Calvert, Ph.D., Editor; E. T. Cresson, Jr., R. G. Schmieder, Ph.D., V. S. L. Pate, Associate Editors.

Advisory Committee: Philip Laurent, J. A. G. Rehn, Chas. Liebeck, J. Chester Bradley, Ph.D., Frank Morton Jones, Sc.D., John C. Lutz, Max Kisliuk, Jr., Wm. W. Chapman.

Subscription price, U. S. Currency, per year of ten (10) numbers: United States, Central and South America $3.00, Canada $3.15, Foreign $3.30.

ADVERTISING RATES: Full width of page. Payments in advance.

One issue, 1 in., $ 1.20, 3 in., $ 3.00, 6 in., $ 7.00
Ten issues, " 8.00, " 25.00, " 60.00

SUBSCRIPTIONS. All remittances and communications regarding subscriptions, non-receipt of the "News" or of reprints, and requests for sample copies, should be addressed to

ENTOMOLOGICAL NEWS, 1900 Race Street, PHILADELPHIA, PA.

MANUSCRIPTS AND ADVERTISEMENTS should be sent to the editor, Dr. P. P. Calvert, P. O. Box 14, Cheyney, Pennsylvania. The receipt of all papers will be acknowledged and, if accepted they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages will be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division. Proof will be sent to authors.

Twenty-five extras (separates) of an author's contribution will be given free when they are requested; they will be "run of form," that is without removal of extraneous matter (parts of other articles at beginning and at end), folded, but unbound, uncut and without covers. Authors wishing more than 25 separates can obtain them, at the rates given at the bottom of this page, by ordering at the time of returning proof. When more than the twenty-five free separates are ordered, ALL the extras will be free of extraneous matter.

Illustrations can be published only when the cost of making all blocks and of printing plates is borne by the author. Blocks must not exceed 4 inches in width; if, including legend, they are longer than 4 inches, they will be treated as plates. It is not advisable to print half-tones as text-figures in the News, but only as plates. No charge is made for printing text-figures smaller than 4 x 4 inches. All blocks will be returned to authors after publication. An extra charge for setting tables is made by the printer. Cost of illustrations and of tables can be learned from the Editor.

Stated Meetings of The American Entomological Society will be held at 8.00 P. M., in 1941, on the fourth Thursday of each month excepting June, July, August, November and December, and on the third Thursday of November and December. Communications are solicited.

The printer of the "News" will furnish reprints of articles, without covers, over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 65 cents; three or four pages, twenty-five copies, $1.05; five to eight pages, twenty-five copies, $1.75; nine to twelve pages, twenty-five copies, $2.35; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates up to 100 copies; over 100 copies prices on application direct to printer. Printed covers for 50 copies, $4.00 or more, according to number of pages bound.

Parcel Post charges will be added according to weight of separates.

Stamps will not be accepted in payment for Reprints

ENTOMOLOGICAL NEWS

VOL. LII DECEMBER 1941 No 10

Notes on the Bionomics of Ataxia hubbardi Fisher in Illinois (Coleop.: Cerambycidae).*

By R. W. WILLIAMS, University of Illinois.†

Ataxia hubbardi seems to have reached Illinois but recently. Through correspondence, the United States National Museum informs me this species had not previously been found as far north and east as Illinois. Moreover the Illinois Natural History Survey has no collection records of its occurrence in this State. Because Fisher (1924) lists its range as Arizona, Texas, Oklahoma, Nebraska, and Kansas, and I found it only in plants growing along an east-west railroad, it quite probably came here via railroad traffic from the west.

In the locality of Urbana, Illinois, the larvae and pupae develop in the petioles of the large basal leaves of Prairie Dock, *Silphium terebinthinaceum* Jacq. The first adult was found within the petiole of a leaf on June 4, 1940. Although fully developed in hardness and color it had not started to make an exit hole. Another section of petiole was found on the same day in which a circular hole had been gnawed, and through which the adult had apparently escaped. Later many more such stems were found.

Near the point where the leaf blade joins the petiole of *Silphium,* small circular holes about 1.5 mm. in diameter were found. These holes appeared to be too regular and too small to have been made by the adult beetle. It would seem, therefore, that the eggs were deposited upon, rather than in the host stalk, and the larvae upon hatching bored into the petiole. This is the procedure of the closely related species *Ataxia crypta (Say)* (Morgan 1907).

* Contribution No. 217 from the Entomological Laboratories of the University of Illinois.

† Now at Cornell University.

Assuming the eggs are deposited on the stems, the larvae, upon hatching, bore into them just below the epidermis and turning towards the base eat downward for an inch or more. They then turn back and eat upwards about the same distance past their entrance holes. The larvae traverse back and forth several times over a period of several days or possibly several weeks. The epidermis of the petioles turns black in these regions. As they become larger the larvae leave the sub-epidermal region and burrow into the pith at the center of the stalk. Here they bore up the mid-rib of the leaf to a point near its tip, a distance of about twelve to fifteen inches. After turning around they come down the mid-rib to a point several inches below the base of the leaf blade. The passage in the mid-rib is filled with frass.

At various distances below the leaf blade the mature larvae girdle the petioles from within. The fallen leaves may be noted lying on the ground about the third week in September. Although all the leaves of this Rosin weed die in the fall and are strewn about over the ground, it is very easy to recognize those which are infested. The factor by which they can be recognized at a distance is the break in the mid-rib at about the middle of the leaf blade. Although all the leaves have a tendency to curl, only the infested stalks break at this point. This break does not appear until after the leaves have begun to dry out. The second recognition mark is the presence of the small circular hole near the base of the leaf blade through which the larva entered the stalk. The smooth girdled end of the stalk, plugged with frass, is a third recognition mark. Although the larvae are not always found in this section of the stalk above the girdle, which bears the blade, the basal portion of the petiole can usually be found within a radius of a few inches from the leaf blade. Rarely was more than one larva found within a stalk and never more than two. When two were present, one was in the section of petiole above the girdle while the other was in the lower section. The girdled end is plugged up with frass so that a closed chamber results in which the larvae overwinter.

Several pupae were found on May 28. These emerged as adults on June 8, indicating that the length of the pupal stage is at least twelve days, perhaps nearer to fourteen. The last pupa was found on June 19. This was the only individual found in the stem of Indian Hemp, *Apocynum cannabinum* L.

Summary.

1. There is one generation a year in the locality of Urbana, Illinois.

2. The newly transformed adults remain two or three days within the stalks of the basal leaves of *Silphium terebinthinaceum* before emerging, and began to appear during the first week in June.

3. The egg is apparently laid upon the outer surface of the petioles.

4. Upon hatching the larvae presumably bore into the pith, where they feed at first just under the epidermis, then in the pith the entire length of the stalk.

5. The mature larvae form the overwintering stage in this area of the insect's distribution.

6. Pupation begins during the last week in May and the pupal stage has a duration of about fourteen days.

Bibliography.

Fisher, W. S. 1924. A New Species of *Ataxia* from the United States. Canadian Ent., Vol. 56, No. 10, pp. 253-254.

Morgan, A. C. 1907. The Cotton Stalk Borer (*Ataxia crypta Say*). U. S. Dept. of Agr. Division of Ent. Bull., 63, Part 7, pp. 63-66.

The Insect Collection of Thaddeus W. Harris (1795-1856) Was transferred (as a deposit) from the New England Museum of Natural History to the Museum of Comparative Zoology in April, 1941, and placed in the Leconte-Fall Room, together with Harris's notebook and certain M. S. lists and data. This is probably the oldest existing general collection of North American insects. Many specimens are broken or damaged by old Dermestid work (some Orthoptera were completely destroyed long ago), but the bulk of the material is in fair condition considering its age. There was no damage during the transfer to the M. C. Z. The collection contains types of probably at least 200 insects, including numerous Coleoptera, described by Say, Harris, and others.—P. J. Darlington, Jr. in Annual Rept. of the Director of the M. C. Z. at Harvard College for 1940-41, pp. 16-17. 1941.

A Migratory Flight of Phoebis agarithe Bd. (Lepid.: Pieridae).

By KENNETH L. KNIGHT, University of Illinois, Urbana.

Two extensive migratory flights of this species were observed* in June, 1940, in the state of Nuevo Leon, Mexico. Specimens captured from one of these flights were identified by Mr. W. D. Field of the Bureau of Entomology and Plant Quarantine as *Phoebis agarithe maxima* Neum. The white female specimens were further designated as the form *albarithe* Brown. Brown[1] reports this subspecies and form as occurring in the region bordering the Gulf of Mexico from Florida to Southern Mexico with possible extensions into the isthmus of Central America. There are no migration records in the literature for this species.

The flight from which the specimens were captured was observed on the morning of June 23rd in a lime orchard at Hacienda Vista Hermosa, two or three miles southwest of Villa Santiago near the slopes of the Sierra Madre Oriental range. The flight was first noticed at about 9:00 A. M. and was progressing from east to west. The sky was cloudless, and there was a slight breeze blowing from the east. The butterflies were traveling at various heights up to about one hundred feet above the ground. There was a wide belt of them flying through the grove and up over the ridge at the western end of the valley.

Twenty-two specimens were captured from this flight. Fourteen of this number were the white female form and the remaining eight were males of the orange subspecies, a sex ratio of 64 per cent females to 36 per cent males. There were a few cloudless yellows in the ranks, but none of them were captured.

---

*Entomologist, The Third Hoogstraal Mexican Biological Expedition, June-September, 1940.

[1] Brown, F. Martin, 1929. A revision of the genus *Phoebis* (Lepid.) *Amer. Mus. Nov.* 368, 32 pp, 37 figs.

Since the path of the flight was so near the ground, many of the butterflies would turn aside a moment to the flowers, but then almost immediately return to the migrating stream. A few Pierids could be seen flying near the ground in directions other than that of the main flight. The flight lasted for about three hours. It stopped with the advent of noon and the dropping away of the breeze. All but two of the specimens captured were quite perfect.

The other flight was observed at 11:00 on the morning of June 22nd at Las Adjuntas, a tiny settlement about fifteen miles southwest of Villa Santiago in the mountains. No specimens were captured, but there were white, orange and yellow Pierids in the flight. They were in about the same ratio of abundance to one another as in the first flight described. This fact, coupled with the nearness of the locality and the similarity of conditions, would tend to indicate that the same species occurred here as in the other migration.

At 11:00 when the flight was first noticed, the butterflies were going along with a steady, swift flight in a northwesterly direction and were apparently riding the strong breeze blowing from the southeast, for when the breeze died away at noon, the flight stopped. In twelve minutes, six hundred butterflies were counted as they passed a point directly overhead, an average of fifty per minute. The lowest butterflies were just clearing the pine trees and were probably thirty feet high. From that elevation, there were butterflies traveling as high as one could see, which was at least a thousand feet, for the high sun illuminated their white or yellow wings in brilliant contrast to the cloudless blue sky. The butterflies were traveling at such different levels that counting was very difficul.t None of them ever faltered to come to earth, and there were no Pierids flying at ground level.

Prof. Funkhouser on a Collecting Trip.

The undersigned is leaving on a collecting trip in South America, Central America and Mexico and will not return until July 1, 1942. After that date the address will be as usual. W. D. FUNKHOUSER, University of Kentucky, Lexington, Kentucky.

What is Pseudomechanitis? (Lepid: Nymphalidae).

By Wm. T. M. Forbes, Cornell University,
Ithaca, New York.

In Fox's generic revision of the Ithomiinae[1], the only nominal genus not recognized is *Pseudomechanitis* Röber. The original figure is so vague, being apparently from a pencil sketch or wash drawing rather than from the butterfly itself, and the description is so incomplete in many important points, that any identification must be considered not quite certain until the type is examined.

But we have a male specimen, collected at R. Aguacatal, West Colombia, that comes from near enough to the type locality, and which in pattern fits as closely to the original figure as any real butterfly might be expected to. It is determined by Fassl as *Ceratinia dionaea limpida,* a form described from the Cauca Valley, and fits well enough also to that description. It is a true *Ceratinia,* both superficially and in genitalia, and so far as I can see differs only in minor pattern features from the well known *C. mergelana,* which the Fassl collection contains in series from Muzo, East Colombia. The true *C. dionaea* is quite distinct, and much more heavily scaled. I therefore propose the following disposal of *Pseudomechanitis paradoxa* Röber.

Ceratinia auct., Hübner in part (syn. *Pseudomechanitis* Röber).

mergelana Hew.[2]

---

[1] Trans. Am. Ent. Soc. lxvi, 205, 1940.

[2] Fox indicates that so far as it is based on Jones' figure, the name of *P. H. Lycaste* Fabr. belongs to this species, and is specifically based on a very dark female of the *megalopolis* race. Since the name of *lycaste* has been universally used for more than half a century for a member of the *iphianassa* group of *Ithomia,* and generally for *I. panamensis,* I prefer to keep to an unambiguous name. The leading references are: Fabricius, Ent. Syst. iii (1) 161, 1793; Holland, Moth Book (1931 Ed.) pl. 72, fig. 2, publishing Jones' figure from the ms. plate of his "Icones",—the "fig. pict." of Fabricius; Fox, Ent. News l, 141, 1939, with discussion and fuller references. Fabricius' type from the Drury via the Milne collection is presumably in the British Museum, but has not been examined in modern times; Butler silently assumes it is identical with the Jones figure.

M. MERGELANA (East Colombia).
M. LIMPIDA Hsch. (Cauca Valley).
M. PARADOXA Röber (West Colombia).

While by strict interpretation of the code under the type fixation clause, *Ceratinia* would not be available in this place, it was in fact available when it came in use, under the then current elimination codes and practices, and should certainly be kept in the sense of more than fifty years unchallenged use, —as a conservandum even if we accept the validity of the *ex post facto* features of the present code.

Migrating Butterflies, Libythea bachmanii larvata Stkr., in Texas. (Lepid.: Nymphalidae).

On a Texas highway in the hot Rio Grande valley, as we drove south from Edinburg to McAllen on July 2, 1940, we encountered hundreds of thousands of snout butterflies (identified by Mr. H. I. O'Byrne as *Libythea bachmanii larvata*) as they crossed the road in migratory flight. They flew 3 to 6 feet above ground. They did not come in a continuous cloud, but in either droves or streams which we cut through intermittently. While most of the droves passed over the highway eastward, a few of them moved in the opposite direction. These swarms appeared every mile or two, with frequent stragglers between. All that were examined had frayed wings. Those in flight did not go around our car, but flew over the top or through the open windows. Likewise they persistently went over the roof of a garage toward the southwest, instead of going around it, for an hour while we watched them.

As a digression from their mass flight in a bee-line against the wind, occasionally two or three or half a dozen would whirl and flutter playfully around each other in a small circle, as if in courtship, and gently drift back with the wind, forgetting for the moment the serious business of going somewhere.

This is not the first record of the migration of the snout butterfly, for Mr. C. B. Williams states in the National Geographic Magazine (May 1937, p. 571) that *Libythea bachmanii* has been seen several times in enormous migrations in Texas, usually in August and September. One of these flights was said to extend over a front of 250 miles, and one and a quarter million butterflies passed per minute on the whole front.

"These flights are usually moving toward the east or southeast, but nothing is known of their origin or destination." Again he says (Ann. Ent. Soc. Amer. 31: 236, 1938), "Of the recorded flights in Texas, all except two were to the S. E. quarter, the two exceptions being toward the north."—PHIL RAU, Kirkwood, Missouri.

Some New Species of Syrphidae from Florida, Cuba and Brazil (Diptera).

By FRANK M. HULL, University of Mississippi.

In this paper I present the description of four new Syrphid flies. Types are in the author's collection.

Volucella florida n. sp.

Closely related to *picta* Wied., it is much larger, the prescutellar spot is double, the middle wing blotch is larger and longer, with a clear sinus; the pteropleural pile is yellow, the basi tarsi are orange-red instead of yellow. The pale spots of the venter are much smaller and do not reach the lateral margins. There is much black pile in the posterior corners of the third segment, almost none in *picta*.

♂. Length 9.5 mm. Head: vertex shining black with black pile, behind which on the occiput are a few silvery hairs. The ocular pile is dense, long and very dark brown. The front and face are light cream-yellow with pale yellow pile; the latter has a median, black, brown-bordered stripe running down to the epistoma where it connects with a similar and wider cheek stripe from eye to epistoma. The posterior part of the cheeks and lower occiput are dark brown. The antennae are elongate, the first two joints light brown, the third joint dark, greyish-brown but little less wide at apex than at base. The arista is pale yellow with fifteen black rays above.

Thorax: mesonotum shining black, the notapleurae, humeri, a pair of rounded spots just before the scutellum, a short sublateral vittae behind the transverse suture and the extreme lateral margin behind the suture as well as a large spot on the upper part of the mesopleurae and the propleurae are light yellow. The pile of the dorsum is light yellow in front and again just before the scutellum and narrowly along the sides and over the post calli, but is broadly black over the posterior

part of the mesonotum; this pile is quite long and thick. There is a conspicuous tuft of long, light, shining yellow pile on the mesopleurae, some on the pteropleurae, upper part of sternopleurae and the propleurae. The scutellum is light translucent clayish-yellow; the long, erect pile of the basal half is light yellow; the equally long dense pile of the posterior half and margin is black.

Abdomen: broad and round, considerably wider than the thorax. The first segment is shining black with pale pile except on the narrow posterior margin in the middle where pile is black. The second segment has the entire posterior half forming a slight arcuate black fascia with short, erect black pile. In the middle on the basal part of the segment is a wide, diffuse, brownish-black area broadly connected with the posterior part. This leaves the lateral anterior corners extensively light yellow and pale yellowish pilose and due to the subtriangular arrangement of the middle basal blackish spot the yellow extends medially and more narrowly than at the sides. Third segment similar to the second in every respect; the posterior black fascia on either side of the median, black, triangular vittae bulges slightly forward and this anterior extension is low and broadly rounded. The pile on this segment, as in the preceding one, is black over the black areas but also over the median or postero-median extension of the yellow color but elsewhere is yellow. The fourth segment is entirely shining black with wholly erect, long, pale yellow pile; the posterior half of the segment is transversely concave from side to side, the hypopygial pile is entirely black.

Legs: all of the femora and tibiae except the narrow apices of the one and the apices of the other, dark, shining, mahogany-brown; the pile of the tibiae is wholly black or very dark brown and on the femora chiefly black, except that there is some yellow pile on the posterior surface basally of all the femora, and the entire dorsal surface and ventral surface basally of the hind femora has long yellow pile. The first two joints of all the tarsi are light orange, the middle tarsi is more yellowish and their pile golden; the apical tarsal joints black with dark colored pile.

Wings: hyaline, marked with brown as follows: a brown cloud at the base of the third longitudinal vein, another over the anterior cross vein, another at the end of the auxiliary vein, and just beyond it a small brown spot which widens out to occupy all of the distal portion of the marginal cell and

widens still more posteriorly to occupy the posterior adjacent section of the submarginal cell and to border both sides of the third longitudinal vein to its termination and to border more narrowly all of the subapical cross vein. The small cross vein is also bordered on either side. The marginal cell is closed and slightly bulbous.

Holotype: one male, St. Augustine, FLORIDA, March.

Volucella pictoides n. sp.

Related to *picta* Wied. Characterized by the wholly black hind femora, black facial stripe and dark brown antennae.

♀. Length 7 mm. Head: the front and face are light yellow, each with a prominent median black stripe. The cheeks are shining black, the pile of face and front yellowish-white. The black frontal stripe is black, pilose. Antennae elongate and dark brown; the dorsal surface of the yellowish arista with fifteen rays. Eyes with dense, short, dark brown pile.

Thorax: mesonotum shining black, the notopleurae, most of the mesopleurae, the propleurae and a geminate spot before the scutellum pale cream-yellow. There is a short, yellowish, sublateral vitta above the base of each wing. Scutellum pale, yellow and translucent, with dense, black pile on all of the dorsum except the basal corners.

Abdomen: broad, globular and inflated. The first segment is brown upon a linear posterior fascia restricted to the middle of the segment and this brown area extends down upon the second segment to cover somewhat more than the basal half of the second segment. Elsewhere these segments are pale yellow. The posterior fourth of the second segment in the middle and in each posterior corner is shining black but this fascia is broadly extended to twice its thickness on either side of the middle. Third segment with a wide posterior fascia, a broad median vitta and the basal corners black, the remainder yellow. Fourth segment, except for a narrow, linear, basal, sublateral fascia, entirely shining black. The black fascia of the second segment and the black vitta of the third segment, except for a narrow median extension of white pile, are all black, pilose; otherwise all of the remaining black area has erect white pile and the yellow areas have whitish pile except for a small encroachment of black pile on either side of the median vitta of the third segment.

Legs: all of the femora and tibiae, including the whole of the hind femora, except their narrow apices and bases respectively, shining black. First two joints of all of the tarsi yellow, the remaining ones almost black. Pile of hind femora, except ventrally near the apex, long and white. Pile of remaining femora largely, and of all the tibiae, black.

Wings: patterned with brownish markings, somewhat similar to other members of the group, the apical third brown with a darker spot at the end of the marginal cell, a sinus before it and after it, another inside of the subapical cross vein and the apical portion of the stigma somewhat clearer. There is a brown spot at the origin of the third vein, another covering the small cross vein, another beginning at the costal and crossing the sub-costal cell at the end of the costal cell; it continues to cross the marginal cell to occupy a portion of this cell.

Holotype: one female, Havana, CUBA, F. M. Hull, August 1937, on herbage.

Planes grisea n. sp.

Related to *chrysopressa* Hull, but distinguished by the opaque black third abdominal segment with its widely separated basal spots, and by the absence of the thick, flat, yellow abdominal pile.

♂. Length 8.5 mm. Head: front shining coppery with considerable, almost white, pubescence along the eye margins. The lower portion of the face is obscurely yellowish-white in ground color. The face is everywhere yellowish-white pubescent. The frontal pile is white; that of vertex partly black. Antennae dark brown, the third joint a little over twice as long as wide, reddish-brown basally.

Thorax: ground color brassy-black on which are four, quite faint and obscure purplish vittae. There is a pair of well developed stripes of brassy-yellow pile; continuous with these is a transverse stripe of such pile along the suture, which stripe emits on either side a sublateral and posteromesonotal stripe of the same pile. There is considerable pale pile in front of the scutellum and on the pleurae, but elsewhere the pile is black. The scutellum is brassy-black, transversely striped with a coppery reflection and has a pair of scarcely differentiated short hairs on the margin.

Abdomen: black, feebly shining, strongly striated. Second segment dark brownish-black, nearly opaque with a pair of light, somewhat obscure, yellowish-brown hemicircles on either

side, which do not reach the margin, widely separated in the middle. Third segment similar, with similar spots, that practically reach the margin. Fourth segment deep shining golden or brassy-black; pilose in the middle of basal half; with suberect brassy pile everywhere.

Legs: posterior femora shining black, the first two pairs blackish-brown on apical half, lighter brown basally and brownish-yellow narrowly at apex. All of the tibiae dark brownish-black, narrowly pale yellow at base, the middle pair perhaps lighter brown. Hind tarsi dark brown. First two joints of other tarsi pale yellow. Middle joint brown, the last joints black.

Wings: tinged with pale brown, the stigma sepia.

Holotype: one male, Sao Paulo, BRAZIL. Nov., 1938, (J. Lane, collector).

Planes valeria n. sp.

Related distantly to *vagans* Wied., this species is characterized by the subpetiolate abdomen, basally fused spots of third segment, pale anterior tarsi and tibia, yellowish scutellar margin etc.

♂. Length 9 mm. Head: front shining black, the narrow margin with pale yellow pubescence. The lower half of the face is broadly pale yellow. The whole of the face is covered with pale yellow pubescence. Frontal and vertical pile yellow. First two joints of antennae black, the third joint less than twice as long as wide, brownish-black in color, reddish ventrally near the base.

Thorax: mesonotum with four greenish vittae, the outer pair broader and interrupted at the suture, and broadly margined everywhere with a brassy color that tends to become coppery. Mesonotal pile brassy-yellow on the anterior half and forming a widely divergent stripe on the posterior two-thirds which loses itself among short black pile. The mesonotal pile just before the scutellum is broadly brassy. Pleural and scutellar pile wholly pale; scutellum with a pair of slender pale bristles; scutellar color dark sepia with a brassy tinge. The margin narrowly brownish-yellow.

Abdomen: first segment greenish-black becoming light brown in the middle. Second dark, opaque sepia; the base narrowly and the narrow margins are light brown, leaving a pair of elongate, posteriolaterally pointed, pale yellow spots,

which do not reach the margin. Third segment similar in general color, the large pair of pale spots confluent narrowly at the base of the segment, pointed posteriorly and directed diagonally out towards the margin which they reach in almost their full length; the extreme basal corner is left dark brown. Fourth segment wholly shining greenish-black; it is black pilose mediobasally, elsewhere pale golden appressed pilose.

Legs: femora shining blackish; their apices and all of front and middle tibiae are light brownish-yellow. All of fore and middle tarsi except last one or two joints are pale yellow. Remainder of hind tibiae dark brown; their apex has a sharp spur.

Wings: pale brownish-grey; the stigma brown.

Holotype: one male, Sao Paulo, BRAZIL, November, 1940. (J. Lane collector).

A New Texas Agrilus (Coleoptera: Buprestidae).

By JOSEF N. KNULL, The Ohio State University.

Agrilus limpiae n. sp.

♂. Resembling *A. obsoletoguttatus* Gory in size and markings, only pubescent areas much more prominent, each elytron with five spots, also sides of pronotum and ventral surface on sides containing white pubescence, front green, rest of insect olivaceous brown.

Head convex, with slight depression on vertex, surface finely granulose, finely rugose on occiput, pubescent; antennae extending nearly to hind angles of pronotum, serrate from the fourth joint.

Pronotum wider than long, much narrower at base than at apex; sides broadly rounded in front, obliquely narrowed to base; when viewed from the side, marginal and submarginal carinae are narrowly separated in front and joined back of middle; anterior margin strongly sinuate, median lobe prominent; basal margin emarginate at middle of each elytron, median lobe deeply emarginate; disk convex with two median depressions, also oblique depression each side, prehumeral carinae sharp; surface finely transversely rugose, fine punctures between rugae. Scutellum transversely carinate.

Elytra wider than base of pronotum; sides subparallel at base, constricted at middle, obliquely narrowed, apices rounded, serrulate; disk flattened, each elytron with vague costa, basal

depressions prominent, sutural margin elevated posteriorly; surface imbricate.

Abdomen beneath finely densely punctate, first segment slightly flattened at middle, rugose, suture between first two segments not indicated at sides; pygidium carinate, carina not projecting. Prosternum granulose, densely pubescent; prosternal lobe deeply emarginate. Tibiae slender, first and second pairs mucronate on inside at apex. Posterior tarsi same length as tibiae; tarsal claws similar on first two pairs of legs, posterior claws with inner tooth broader, inner teeth not turned inward.

Length 6.5 mm.; width 1.8 mm.

♀. Differs from the male by having the front olivaceous, antennae shorter, posterior tarsi shorter than tibiae, tibiae not mucronate and lack of pubescence on prosternum.

Type male, *allotype* and *paratypes* collected from the foliage of soapberry (*Sapindus drummondi* Hook. & Arn.) in the Davis Mountains, TEXAS, July 2, 1940; paratypes from the same locality ranging in dates from June 1 to July 12, D. J. and J. N. Knull collectors. Type, allotype and paratypes in writer's collection, paratypes in collections of The Ohio State University and Philadelphia Academy of Natural Sciences.

According to Fisher's key* this species would run to *A. obsoletoguttatus* Gory. It can be separated by being more olivaceous, pubescence more prominent, male posterior tarsi of about same length as tibiae and by the structure of the male genitalia. The lateral lobe of the aedeagus is serrate on outer margin near apex, otherwise this organ is similar to that of *A. obsoletoguttatus* Gory.

The writer is indebted to Mr. C. A. Frost, who kindly compared specimens with the type series of *A. interruptus* Lec.

Yellow Fever.

Attention now centers on jungle yellow fever which is the same disease as urban yellow fever but with this distinguishing epidemiological characteristic, that in its special forest environment it is not transmitted by *A. egypti*. Risk of yellow fever epidemics will remain as long as jungle yellow fever persists. A complete extermination of the disease now seems remote if not impossible. — Annual Report 1940, International Health Division, The Rockefeller Foundation, pp. 12-13. (1941).

* W. S. Fisher, U. S. National Mus. Bul. 145, pp. 1-347, 1928.

Dragonflies New to the Mount Desert Island Region, Maine (Odonata).

By Ranger-Naturalist CARSTEN AHRENS, Acadia National Park, Maine.

In ENTOMOLOGICAL NEWS for May, 1891, D. J. Bullock published brief notes on 8 species of dragonflies collected on Mt. Desert Island, Maine. In the same publication, October, 1894, Dr. P. P. Calvert listed 5 species collected by Bullock in this same region. Then in 1938, William Proctor, D. Sc., published the *Insect Fauna*, Part VI of the *Biological Survey of the Mount Desert Region*. In this volume is an annotated list of 54 species of dragonflies taken over a period of years (1927-1938). The three lists mentioned above include 55 species.

During the months of July and August of 1940 and 1941, the writer was a ranger-naturalist in the Acadia National Park, which is located on Mount Desert Island, Maine. During this period and for this region he raised the number of species from 55 to 80. Of the 25 species that are new records for the Mount Desert Region, 2 seem to be new records for the state of Maine. They are *Aeschna sitchensis* Hagen and *Sympetrum danae* Sulzer.

The writer wishes to thank Park-naturalist Maurice Sullivan of the Acadia National Park for his encouragement and helpfulness; to express again his appreciation to Mrs. Leonora K. Gloyd for going over the collection to check his identifications; to thank Dr. Donald Borror for literature. He also wishes to express his appreciation and admiration to Mrs. Ahrens who in two short seasons became an expert collector, and who never complained even when entomological paraphernalia covered every flat surface in the apartment.

ANISOPTERA.

1. HAGENIUS BREVISTYLUS Selys. Fairly common along Echo Lake and Jordan Pond, July 29-Aug. 14. Observed occasionally at the outlets of lakes, 1940, 1941.

2. DROMOGOMPHUS SPINOSUS Selys. A pair taken along Great Pond on Aug. 28, 1940. Several observed squatting on

the sand and rocks along or near the shore during late Aug. 1941.

3. LANTHUS ALBISTYLUS Hagen. Four males captured along the little stream that flows into boggy New Mill Meadow, July 16-Aug. 18. They fly close to the water, alighting frequently on the rocks that break the surface, 1940, 1941.

4. L. PARVULUS Selys. One male, Jordon Pond, July 19, 1940; one male at the beaver dam on Norway Drive, Aug. 7, 1940.

5. EPIAESCHNA HEROS Fabricus. One female taken while she was ovipositing along a heavily shaded part of Squid Creek, July 8, 1940.

6. AESCHNA SITCHENSIS Hagen. Two males captured on the bog at Sea Wall, Aug. 14, 1940. These insects were observed at the very edge of the bog, distant from the pools of standing water.

7. AE. EREMITA Scudder. Fairly common in diverse habitats during late July and early Aug., 1940, 1941.

8. MACROMIA ILLINOIENSIS Walsh. Observed this species on a number of occasions during both summers as it patrolled the shady carriage roads. One male netted July 3, 1941.

9. SOMATOCHLORA TENEBROSA Say. Collected this insect now and then along shady streams during Aug., 1940, 1941.

10. S. MINOR Calvert. Two females were collected while they were ovipositing along a tiny stream that flows into Aunt Betty Pond, Aug. 14, 1940.

11. S. WALSHI *Scudder*. One male taken in the wide marshy area of lower Northeast Creek, July 21, 1941; one male, Schoodic Peninsula, July 29, 1941.

12. S. FORCIPATA *Scudder*. One female, Echo Lake, July 3, 1940.

13. S. WILLIAMSONI E. M. Walker. One male, lower Northeast Creek, July 21, 1941.

14. S. KENNEDYI E. M. Walker. One male, Echo Lake, July 3, 1941.

15. CELITHEMIS MARTHA Williamson. This species was less common than was C. *elisa*, but it was found in its company

around all the lakes during early and middle Aug., 1940. It was not observed during the summer of 1941, although C. *elisa* was common.

16. LADONA JULIA Uhler. Fairly common about the pools of standing water at the bog at Sea Wall during the first two weeks of Aug., 1940, 1941.

17. LIBELLULA PULCHELLA Drury. Common at Sargent Pond and at the beaver dam on Norway Drive during Aug., 1940, 1941.

18. SYMPETRUM DANAE Sulzer. Four males were netted in a tide swamp behind a sea wall on Great Duck Island, Aug. 3, 1940.

19. S. SEMICINCTUM Say. Fairly common in the New Mill Meadow during middle Aug., 1940, 1941. They are usually in the company of *Nannothemis bella* Uhler.

20. S. DECISUM Hagen. Found almost everywhere during July and Aug., 1940, 1941.

21. PANTALA FLAVESCENS Fabricus. Observed frequently during Aug. in Bar Harbor, 1940, 1941.

ZYGOPTERA.

22. LESTES EURINUS Say. Taken occasionally at the bog at Sea Wall during the first two weeks of Aug., 1940, 1941.

23. L. RECTANGULARIS Say. Netted frequently during the latter part of July and early Aug., 1940, 1941.

24. ENALLAGMA VESPERUM Calvert. Three males collected at Aunt Betty Pond, Aug. 7, 1940.

25. E. ASPERSUM Hagen. Fairly common during the first week in Aug., 1940, 1941.

Why Does Gyrinus Circle? (Coleoptera: Gyrinidae).

By CYRIL E. ABBOTT, Harding College, Searcy, Arkansas.

Several years ago a friend of mine attempted to determine the origin and function of the circular locomotion of the Gyrinidae. He finally decided that the beetles were not compelled to behave in that manner, and that the motion is "instinctive".

the sand and rocks along or near the shore during late Aug. 1941.

3. LANTHUS ALBISTYLUS Hagen. Four males captured along the little stream that flows into boggy New Mill Meadow, July 16-Aug. 18. They fly close to the water, alighting frequently on the rocks that break the surface, 1940, 1941.

4. L. PARVULUS Selys. One male, Jordon Pond, July 19, 1940; one male at the beaver dam on Norway Drive, Aug. 7, 1940.

5. EPIAESCHNA HEROS Fabricus. One female taken while she was ovipositing along a heavily shaded part of Squid Creek, July 8, 1940.

6. AESCHNA SITCHENSIS Hagen. Two males captured on the bog at Sea Wall, Aug. 14, 1940. These insects were observed at the very edge of the bog, distant from the pools of standing water.

7. AE. EREMITA Scudder. Fairly common in diverse habitats during late July and early Aug., 1940, 1941.

8. MACROMIA ILLINOIENSIS Walsh. Observed this species on a number of occasions during both summers as it patrolled the shady carriage roads. One male netted July 3, 1941.

9. SOMATOCHLORA TENEBROSA Say. Collected this insect now and then along shady streams during Aug., 1940, 1941.

10. S. MINOR Calvert. Two females were collected while they were ovipositing along a tiny stream that flows into Aunt Betty Pond, Aug. 14, 1940.

11. S. WALSHI *Scudder*. One male taken in the wide marshy area of lower Northeast Creek, July 21, 1941; one male, Schoodic Peninsula, July 29, 1941.

12. S. FORCIPATA *Scudder*. One female, Echo Lake, July 3, 1940.

13. S. WILLIAMSONI E. M. Walker. One male, lower Northeast Creek, July 21, 1941.

14. S. KENNEDYI E. M. Walker. One male, Echo Lake, July 3, 1941.

15. CELITHEMIS MARTHA Williamson. This species was less common than was C. *elisa*, but it was found in its company

around all the lakes during early and middle Aug., 1940. It was not observed during the summer of 1941, although C. *elisa* was common.

16. LADONA JULIA Uhler. Fairly common about the pools of standing water at the bog at Sea Wall during the first two weeks of Aug., 1940, 1941.

17. LIBELLULA PULCHELLA Drury. Common at Sargent Pond and at the beaver dam on Norway Drive during Aug., 1940, 1941.

18. SYMPETRUM DANAE Sulzer. Four males were netted in a tide swamp behind a sea wall on Great Duck Island, Aug. 3, 1940.

19. S. SEMICINCTUM Say. Fairly common in the New Mill Meadow during middle Aug., 1940, 1941. They are usually in the company of *Nannothemis bella* Uhler.

20. S. DECISUM Hagen. Found almost everywhere during July and Aug., 1940, 1941.

21. PANTALA FLAVESCENS Fabricus. Observed frequently during Aug. in Bar Harbor, 1940, 1941.

ZYGOPTERA.

22. LESTES EURINUS Say. Taken occasionally at the bog at Sea Wall during the first two weeks of Aug., 1940, 1941.

23. L. RECTANGULARIS Say. Netted frequently during the latter part of July and early Aug., 1940, 1941.

24. ENALLAGMA VESPERUM Calvert. Three males collected at Aunt Betty Pond, Aug. 7, 1940.

25. E. ASPERSUM Hagen. Fairly common during the first week in Aug., 1940, 1941.

Why Does Gyrinus Circle? (Coleoptera: Gyrinidae).

By CYRIL E. ABBOTT, Harding College, Searcy, Arkansas.

Several years ago a friend of mine attempted to determine the origin and function of the circular locomotion of the Gyrinidae. He finally decided that the beetles were not compelled to behave in that manner, and that the motion is "instinctive".

Now, the definition of behavior as instinctive really explains nothing, excepting that we have no adequate explanation. And so, after reading the paper by Brown and Hatch (1929) it occurred to me that circling might possibly be the result of visual responses. But when rather complex apparatus for testing such responses gave absolutely no positive results, the problem appeared, for a time, insoluble.

In the meantime I obtained and read a copy of the monograph on chordotonal organs by Eggers (1928). Eggers succeeded in demonstrating experimentally that the Gyrinidae avoid collision with solid objects through the perception of vibrations of the water's surface, and that the sense organs concerned are located in the second segment of each antenna. This recalled the familiar observation that when a small moth or other similar insect falls upon the water in the vicinity of a number of "whirligig" beetles, the latter soon surround it and tear it to pieces. For the Gyrinidae are predatory in both the larval and adult stages.

The foregoing observations suggested the experiments described below. From the moveable arm of an electric vibrator having a frequency of 60/sec. an iron ball weighing about 25 gms. was suspended on a 20 B & S guage wire about two feet in length. A large aquarium tank was so arranged that the weight hung about four inches below the surface of the water. About thirty specimens of *Gyrinus* (sp?) were then placed in the tank, and a screen so arranged that their movements could be observed without subjecting them to visual stimuli. Using this apparatus the following experiments were performed:

1. The beetles were observed for some time with the vibrator motionless. Under such circumstances the beetles circled aimlessly all over the exposed water's surface.

2. The vibrator was set in motion. Immediately, the beetles nearest the wire turned toward it, swam up to it, and made grasping movements with the prothoracic legs. And although the vibration of the wire flung each insect a distance of a centimeter or two, the beetle immediately repeated its orienting

and grasping movements. These "attempts", in the case of single specimens, were repeated at intervals of about two seconds.

3. The vibrator was stopped. The beetles at once began to wander all about the tank; if anything, they avoided the wire.

4. With the aid of a pair of fine forceps antennae were removed from fifteen beetles; these alone were replaced in the tank. When the vibrator was started the beetles paid no more attention to it than when it was motionless; that is, they wandered aimlessly all over the tank. One or two made a feeble and occasional attempt to seize the wire, but subsequent examination indicated that two or three specimens had parts of the antennae still attached.

The experiments described were repeated many times, under various circumstances: always the results were the same as there indicated. *Normal* beetles also oriented to tuning forks with vibration rates of 256/sec., 320/sec., and 384/sec., *when each of these was touched to the surface of the water.* Under no circumstances did any of the beetles respond to air vibrations alone, although efforts were made to induce such a response. Needless to say, beetles with amputated antennae did not respond to the forks under any circumstances.

Of further interest is the fact that Gyrinus made no orienting movements toward the vibrating object when and if that object was more than three or four centimeters from the insect.

Now the activities of the Gyrinidae in the adult stage are chiefly confined to the surface of the water, where they feed, as has been observed, upon hapless winged insects falling thereon, and which, through their struggles, set up a vibration of that surface; by means of such vibrations Gyrinus reaches its prey. But evidently the perception of such minute and rapid vibrations is effective only within a very limited area around the source of the vibration. By *circling,* Gyrinus greatly increases the area of surface which it covers in a given time, and hence, naturally increases its *chances* of encountering vibrations set up on the surface of the water.

In short, the circling beetle is literally "feeling for prey". And the organs upon which it depends for the discovery are the antennae.

LITERATURE CITED.

EGGERS, F. 1928. Die stiftführenden Sinnesorgane Berlin (Borntraeger) (Cf. pp. 342-343).

BROWN, C. R. and M. H. HATCH. 1929. Orientation and fright reactions of whirligig beetles.—Jour. Compar. Psychol., 9: 159-189.

The Dates of Publication of Two Articles on Coleoptera by John L. Leconte, Issued in 1845.

By HUGH B. LEECH[1], Vernon, British Columbia.

In examining the literature on one of Leconte's species, it was found that the original description was cited variously as of 1844, 1845, 1846 and 1847. Since beetles belonging to four families[2] date from the same article, the following notes may be of interest.

The two papers in question are Leconte's "Descriptions of some new species of coleopterous insects inhabiting the United States", in the *Proceedings of the Boston Society of Natural History*, Volume I, page 201; and his "Descriptions of some new and interesting insects, inhabiting the United States", in the *Boston Journal of Natural History*, Volume V, No. 2, pages 203-209. Although having a different title, the first paper is in fact merely an abstract of the second, giving the preliminary diagnoses of the species, but not the fuller descriptions and references. The second article is accompanied by a fine plate (No. 18) illustrating the species, and opens with a diatribe against American entomologists who sent their new species to Europe for description.

The title page of Volume I of the *Proceedings of the Boston Society of Natural History* is dated 1844. However, at the bottom of page 201 there is a printer's signature:

[1] Contribution No. 2080, Division of Entomology, Science Service, Department of Agriculture, Ottawa, Ontario.

[2] Cicindelidae: *Cicindela audubonii* Leconte. Carabidae: *Calosoma triste* Lec., *C. lepidum* Lec., *Scarites patruelis* Lec., *S. affinis* Lec., *S. ephialtes* Lec., *S. intermedius* Lec. Dytiscidae: *Dytiscus marginicollis* Lec. Cerambycidae: *Lamia bellii* Lec. (= *Plectrodera scalator* Fab.).

"Proceedings B.S.N.H. 22 March, 1845," which indicates that the volume was not published in 1844. On page 200 there is a paper by Richard Soule, Jr., "giving an account of experiments on the juice of Cornstalk, made Sept. and Oct. 1844"; it seems unlikely that the volume was published between that time and the end of the year. Fortunately the *Proceedings of the Academy of Natural Sciences of Philadelphia* contain records of accessions to the Academy's Library; the second half of Volume I of the Boston *Proceedings* (page 129 to end), was noticed at the stated meeting on September 2, 1845. As the previous stated meeting was on August 19, 1845, we have a fairly good indication of the time when these pages were mailed.

The title page to Volume V of the *Boston Journal of Natural History* is dated 1847. In the minutes of the meeting of the Boston Society of Natural History on October 15, 1845, the following statement occurs: "Dr. Gould announced that a new number of the *Journal*, being the second this year, was ready for distribution". This gives us the approximate date of publication. Referring again to the *Proceedings* of The Philadelphia Academy, we find that in the minutes of the stated meeting on December 16, 1845, Volume 5, No. 2 (really a Part) of the *Boston Journal of Natural History* is listed among the donations to the library. In the minutes of a meeting on May 6, 1845, Volume 5, No. 1 is listed as received.

Thus it appears that the Lecontean species of beetles described in these papers must all be cited as of 1845, the actual date of publication of the abridged paper being not long before September 2. It is unfortunate that the second paper did not appear first, since it contains the full descriptions and their accompanying illustrations; however, we do know that it was published between October 15 and December 16, 1845.

Acknowledgment. It is a pleasure to mention the cordial help of Dr. Richard Dow, of the Boston Society of Natural History. He searched through the older journals not available to me, and provided information from which the above notes on dates of publication were made.

Current Entomological Literature

COMPILED BY L. S. MACKEY, R. G. SCHMIEDER,
A. G. RICHARDS, JR. and JOHN W. H. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. All continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of **Entomological News** for 10c. The number of, or annual **volume**, and in some cases the part, heft, &c., the latter **within ( )** follows; then the pagination follows the colon :

Papers published in the Entomological News are not listed.

GENERAL.—Anon.—Dr. Frederic Wallace Edwards (1888-1940). [105] 12: 415-416. **Banks, N.**—Report on entomology. [Ann. Rep. Dir. Mus. Comp. Zool.] 1940-41: 13-16. **Barton, D. R.**—Attorney for the insects. [Natural History] 48: 181-185, ill. **Bondar, G.**—Notas entomologicas da Baja. [105] 12: 268-303, ill. **Brown, R. W.**—Concerning the antiquity of social insects. [5] 48: 105-110. **Bruch, C.**—Walter Horn (1871-1939) Semblanza de una vida fecunda. [104] 11: 45-48, photo. **Carpenter, F. M.**—Report on fossil insects. [Ann. Rep. Dir. Mus. Comp. Zool.] 1940-41: 33. **Carter, W.**—Insects and the spread of plant diseases. [An. Rep. Smiths. Inst.] 1940. 329-342, ill. **Cockerell, T. D. A.**—Observations on plants and insects in northwestern Baja California, Mexico, with descriptions of new bees. [Trans. San Diego Soc. Nat. Hist.] 9: 339-352. **Davis, W. T.**—Charles William Leng. [Pro. Staten Island Inst. Arts & Sci.] 9: 75-80, ill. Natural History records from the meetings of the Staten Island Nature Club. [Pro. Staten Island Inst. Arts & Sci.] 9: 97-112. **Fester, G. A.**—Colorantes de insectos. [106] 132: 100-103. **Graham, S. A.**—Royal Norton Chapman. 1889-1939. [7] 34: 521-524, ill. **Hayward, K. J.**—Departamento de Entomologia. [Rev. Ind. & Agric. Tucuman] 31: 50-58. **Howell, T.**—Some aquatic insects from the Great Smoky Mountains National Park. [Jour. Tenn. Acad. Sci.] 16: 406-407. **Imms, A. D.**—The prickly-pear problem in Australia. [Nature] 148: 303-305.

ill. **MacLagan, D. S.**—Sunspots and insect outbreaks an epidemiological study. [Pro. Univ. Durham Philo. Soc.] 10: 173-199, ill. **Soraci, F. A.**—Important nursery insects of New Jersey. [N. J. Dept. Agric.] Circ. 326: 72 pp., ill. **Stunkard, H. W.**—In Memoriam, Adolpho Lutz. [Jour. Parasit.] 27: 469-471. **Vargas, L.**—Aplicación taxonómica de un método estadístico. [Rev. Inst. Salubridad y Enferr Trop.] 2: 123-128, ill. **Wolcott, G. N.**—A supplement to "Insectae Borinquenses". [Jour. Agric. Univ. Puerto Rico] 25: 33-158.

ANATOMY, PHYSIOLOGY, ETC.—Caspari, E.—The morphology and development of the wing pattern of Lepidoptera. [Q. Rev. Biol.] 16: 249-273, ill. **Eder, R.**—Die kutikuläre Transpiration der Insekten und ihre Abhangigkeit vom Aufbau des Integumentes. [Zool. Jahrb., Abt. allg. Zool.] 60: 203-240. ill. **Evans, T. C.**—Sequence of roentgen ray effects on the development of the grasshopper egg. I. [Phys. Zool.] 14: 163-173. ill. **Ford, E. B.**—Studies on the chemistry of pigments in the Lepidoptera, with reference to their bearing on systematics. The Anthoxanthins. [107] 16: 65-90. **Gosswald, K.**—Über den Einfluss von verschiedener Temperatur und Luftfeuchtigkeit auf die Lebensäusserungen der Ameisen. II. Über den Feuchtigkeitssinn ökologisch verschiedener Ameisenarten und seine Beziehung zu Biotop, Wohn-und Lebensweise. [94] 154: 247-344, ill. **Hall, H. F.**—A note on terminology regarding intersexes. [J. Hered.] 32: 309, 314. **Hanstrom, B.**—Inkretorische organe, sinnes-organe und nervensystem des kopfes einiger niederer insektenordnungen. [Kungl. Svenska Vetenskapsakad. Handlingar] 18: 266 pp., ill. **Hardman & Craig.**—A physiological basis for the differential resistance of the two races of red scale to HCN. [68] 94: 187. **Harpster, H. T.**—An investigation of the gaseous plastron as a respiratory mechanism in Helichus striatus Leconte (Dryopidae). [Trans. Amer. Micr. Soc.] 60: 329-358, ill. **Jeschikov, J.**—Die Dottermenge im Ei und die Typen der postembryonalen Entwicklung bei den Insekten. [34] 134: 71-87, ill. **Mazek-Fialla, K.**—Die Körpertemperatur poikilothermer Tiere in Abhängigkeit vom Kleinklima. [94]: 154: 170-246. ill. **Prebble, M. L.**—The diapause and related phenomena in Gilpinia polytoma. [Can. Jour. Res.] 19 (Sec. D): 295-346, ill. **Rifenburgh, S. A.**—Certain genetic effects of short-wave ultra-violet radiation on Drosophila melanogaster. [Lloydia] 4: 65-76. **Roberts, H.**

R.—A comparative study of the sub-families of the Acrididae primarily on the basis of their phallic structures. [Pro. Acad. Nat. Sci. Phila.] 93: 201-246, ill. **Yeager & Munson.**—Histochemical detection of glycogen in blood cells of the southern army-worm (Prodenia eridania) and in other tissues, especially midgut epithelium. [47] 63: 257-294, ill.

ARACHNIDA AND MYRIOPODA.—Chamberlin, R. V.—On a collection of Myriopods from Venezuela. [95] 54: 137-142. (*). **Chamberlin & Ivie.**—North American Agelenidae of the genera Agelenopsis, Calilena, Ritalena and Tortolena. [7] 34: 585-628, ill. **Davis, G. E.**—Ornithodoros parkeri: observations on the biology of this tick. [Jour. Parasit.] 27: 425-433. **Gertsch, W. J.**—Report on some arachnids from Barro Colorado Island, Canal Zone. [40] No. 1146: 14 pp., ill. New American spiders of the family Clubionidae. I and II. [40] Nos. 1147 and 1148: 20 pp., ill., 18 pp., ill. **Jones, S. E.**—Influence of temperature and humidity on the life history of the spider Agelena naevia. [7] 34: 557-571, ill. **Kaston, B. J.**—Mastophora cornigera a spider new to New England. [Conn. State Ent. 40th Rep.] Bull. 445: 379-380. **Katz & Chapman.**—A collection of Ohio ticks and their hosts. [Jour. Parasit.] 27: 467-468. **Lundblad, O.**—Neue Wassermilben [28] 62: 97-121. Weitere neue Wassermilben aus Brasilen und Paraguay. [28] 62: 122-126. **McIvor, B. C.**—A new species of Ornithodoros tick from Nevada. (Acarina). [Jour. Parasit.] 27: 435-436, ill. **Semans, F. M.**—Black widow spider (Latrodectus mactans) distribution in Ohio. [43] 41: 380. **Seyler, P. J.**—The generic and specific status of four Ohio spiders of the genus Agelenopsis. [Ohio Jour. Sci.] 41: 51-69, ill. **Stone, P. C.**—The brown dog tick, Rhipicephalus sanguineus in the role of a household pest in the northern United States. [Proc. Mo. Acad. Sci.] 6: 75-77. **Travis, B. V.**—Examinations of wild animals for the cattle tick Boophilus annulatus microplus in Florida. [J. Parasit.] 27: 465-467.

THE SMALLER ORDERS OF INSECTS.—Banks, N.—Three new species of Myrmeleonidae. [5] 48: 101-104. **Dias dos Santos, N.**—Uma nova especie do "Libellulidae" do genero "Zenithoptera" Selys, 1882. (Odonata). [Rev. Brasil. Biol.] 1: 207-213, ill. **Goodrich, A. L.**—The external anatomy of the pupal abdomen in Dicosmoecus atripes. [103] 14: 134-143, ill. **Hood, J. D.**—A century of new American Thysanoptera. [105] 12: 139-243, ill. (s). **Kals-**

hoven, L. G. E.—Groundplans of Termite Nests. [Ent. Med. Ned.-Indié.] 7: 30-34, ill. **Kennedy, C. H.**—Perilestinae in Ecuador and Peru: revisional notes and descriptions. (Lestidae). [7] 34: 658-688, ill. (*k). **May, E.**—The behavior of the intestinal protozoa of termites at the time of the last ecdysis. [Trans. Amer. Micr. Soc.] 60: 281-292, ill. **Moulton, D.**—Thysanoptera from Minas Gerais, Brazil. [105] 12: 314-322. (*). **Needham, J. G.**—Life history studies on Progomphus and its nearest allies (Aeschnid.). [1] 67: 221-245, ill. A note concerning aggregations of Ululodes villosa. [5] 48: 112. **Setty, L. R.**—The biology and morphology of the adult hanging-fly (Mecoptera). [Proc. Mo. Acad. Sci.] 6: 74-75. **Söfner, L.**—Zur Entwicklungsbiologie und Oekologie der einheimischen Psocopterenarten Ectopsocus meridionalis (Ribaga) 1904 und Ectopsocus briggsi McLachlan 1899. [Zool. Jahrb., Abt. f. Syst.] 74: 323-360, ill. **Spieth, H. T.**—Taxonomic studies on the Ephemeroptera. [119] 26: 233-280, ill. **Werneck, F. L.**—De um estranho parasito do Cao. (Mallophaga). [Rev. Brasil. Biol.] 1: 47-55, ill. Os Malofagos do boi e do cavalo. [Rev. Brasil. Biol.] 1: 195-199, ill.

ORTHOPTERA.—Callan, H. G.—A trisomic grasshopper. [J. Hered.] 32: 296-298, ill. **Cousin, G.**—Sur la détermination de coefficients d'hybridation par une méthode graphique. Estimation quantitative de la transmission des caractères spécifiques de Gryllus campestris et Gr. bimaculatus a leurs hybrides réciproques C ♀ B ♂ et B ♀ c ♂. [77] 134: 16-19, ill. **Crumb, Eide & Bonn.**—The European earwig. [U. S. Dept. Agric.] Tech. Bull. 766: 76 pp., ill. **Daguerre, J. B.**—El genero Schistocerca en la Republica Argentina. [104] 10: 327-337, ill. **Dooley, T. P.**—The influence of colchicine upon the germ cells of insects (Orthoptera) with special reference to the mitochondria and dictyosomes. [Trans. Amer. Micr. Soc.] 60: 105-119, ill. **Hollande, A.-Ch.**—Solénosomes et chondriome de la cellule intestinale du criquet égyptien (Orthacanthacris aegyptia). Processus d'assimilation et coloration vitale. [77] 134: 242-245, ill. **Isely, F. B.**—Researches concerning Texas Tettigoniidae. [Ecol. Monogr.] 11: 457-475, ill. **Jacobson & Farstad.**—Some observations on differential feeding on maturing wheat varieties by grasshoppers. [4] 73: 158-159. **MacLeod, G. F.**—Effects of infra red irradiation on the American cockroach. [12] 34: 728-729. **Needham, J. G.**—Life history studies on Progomphus and its

nearest allies. [1] 67: 221-245, ill. **Strohecker, H. F.**—Two new species of Orthoptera from Texas. [7] 34: 539-542, ill.

HEMIPTERA.—Boyden, B. L.—Eradication of the Parlatoria date scale in the United States. General information on the scale. [U. S. Dept. Agric.] Misc. Publ. No. 433: 18-24, ill. **Carter, W.**—Peregrinus maidis and the transmission of corn mosaic. [7] 34: 551-556. **Christensen, J. R.**—Un nuevo enemigo de los Manzanos en la Argentina, Typhlocyba froggatti. [104] 10: 298-303, ill. **de Carlo, J. A.**—I) Descripcion de dos especies nuevas del genero Limnocoris Stal.-II) Nuevas consideraciones sobre Cryphocricus daguerrei y Cryphocricus rufus de Carlo. (Hemiptera-Naucoridae). [104] 11: 37-41, ill. **DeLong, D. M.**—A new genus (Knullana) and two new species of leafhoppers (Cicadellid.) from Mexico. [Ohio Jour. Sci.] 41: 86-88, ill. **Doering, K. C.**—A revision of two genera of North American Cercopidae. [103] 14: 109-134. (*k). **Drake & Harris.**—A new Velia from Trinidad. [105] 12: 338-339. **Ekblom, T.**—Untersuchungen über den Flügeldimorphismus bei Gerris asper L. [51] 21: 49-64, ill. **Evans, J. W.**—The inter relationships of certain jassoid genera. [5] 48: 113-121, ill. **Gorham, R. P.**—Aphid flights observed in New Brunswick. [4] 73: 157-158. **Hixson, E.**—The host relation of the cotton flea hopper. [Iowa State Coll. Jour. Sci.] 16: 66-68. **Jacobi, A.**—Die Zikadenfauna der Kleinen Sundainseln. [Zool. Jahrb., Abt. f. Syst.] 74: 277-322, ill. **Lent, H.**—"Latrocimex spectans" n. gen., n. sp. parasito de morcegos no Brasil (Cimicidae). [Rev. Brasil. Biol.] 1: 41-46, ill. **Merti, C.**—Contribucion al estudio de Mantispa decorata. (Cor.) [104] 10: 304-307, ill. Biologia de Athaumastus haematicus. [104] 10: 308-312, ill. **Neiva & Lent.**—Sinopse dos Triatomideos. [105] 12: 61-92, ill. **Richter, L.**—Contribucion al conocimiento de los Membracidae de Colombia. [Caldasia] 1941: 67-74, ill. **Smith, C. F.**—(see Hymenoptera). **Tuthill, L. D.**—Monograph of the Psyllinae and Triozinae (Psyllid.) in America north of Mexico. [Iowa State Coll. Jour. Sci.] 16: 145. **Usinger, R. L.**—Two new species of Aradidae from Baltic amber. [5] 48: 95-100, ill. **Watkins, T. C.**—Clover leafhopper (Aceratagallia sanguinolenta). [Cornell Univ. Agric. Exp. Sta.] Bull. 758: 24 pp., ill. **Wilson, F. H.**—The slender lice of american pigeons and doves with descriptions of two new species. [Jour. Parasit.] 27: 259-264, ill.

LEPIDOPTERA.—Babers, F. H.—The buffer capacity of the blood of the sixth-instar southern armyworm (Prodenia eridania). [47] 63: 183-190, ill. **Bourquin, F.**—Metamorfosis de Magalopyge albicollis Walker 1910 (Megalopygyd) [104] 11: 22-30, ill. **Brues, C. T.**—Photographic evidence on the visibility of the color patterns in buttterflies to the human and insect eye. [Proc. Amer. Acad. Arts & Sci.] 74: 281-285, ill. **Caspari, E.**—(See Anatomy & Physiology.) **Dethier, V. G.**—Metamorphoses of Cuban Nymphalidae and Lycaenidae. [5] 48: 70-78, ill. **Filho, J. O.**—Contribuicao ao conhecimento do genero "Eacles" Hubner, 1819 (Adelocephalid.). [Rev. Brasil. Biol.] 1: 129-143, ill. Nova especie do genero "Eacles" Hubner, 1819 (Adelocephalid.). [Rev. Brasil. Biol.] 1: 103-109, ill. **Hayward, K. J.**—Hesperioidea Argentina XI. [104] 10: 279-297, ill. (*). Plantas Alimenticias de Hesperidos Argentinos. [104] 11: 31-36. **Jarvis, F. V. L.**—The nature of hibernation in Lepidoptera. [Pro. & Trans. So. Lond. Ent. & Nat. Hist. Soc.] 1941-42: 10 pp., ill. **Kohler, P.**—Lepidopteros raros y nuevos para la Republica Argentina. [104] 10: 316-320. **Lustig, E. F.**—Nautical butterflies. [Chicago Nat.] 4: 85, 95. **McDunnough, J.**—Some apparently undescribed Coleophoridae from the Ottawa region. [4] 73: 160-164, ill. Oncocnemis riparia and its races. [4] 73: 171-174, ill. (*). **Nikitin, J. V.**—Effect of fermenting molasses on the fecundity of the cutworm, Feltia segetum. [Bull. Plant Protection, Leningrad] 1941 (1): 36-41. **Rubtsov, J. A.**—Effect of temperature and humidity on the development of the eggs and larvae of the boll worm. [Bull. Plant Protection, Leningrad] 1941 (1): 9-19. **Tirelli, M.**—The karyoplasmic ratio in the embryos of monovoltine and bivoltine races of the silkworm, Bombyx mori. [Phys. Zool.] 14: 70-77, ill. **Travassos & May.**—Um novo "Adelocephalidae" Burmeister, 1878. [Rev. Brasil. Biol.] 1: 117-120, ill. **Wahlgren, E.**—Fjärilar och blommor. [28] 62: 49-87. **Williams, J. L.**—The internal genitalia of Yucca moths, and their connection with the alimentary canal. [Jour. Morph.] 69: 217-223, ill.

DIPTERA.—Adams, C. F.—A preliminary list of muscoid flies in Missouri. [Proc. Mo. Acad. Sci.] 6: 73-74. **Alexander, C. P.**—Records and descriptions of Tipulidae from tropical America. [105] 12: 322-337, ill. (*). Records and descriptions of North American crane-flies. [119] 26: 281-319, ill. (*). **Balch, R. E.**—European spruce sawfly. [Canadian Nat.] 3: 139. ill. **Bohart, R. M.**—A revision of the Strepsiptera with special reference to the species of

North America. [67] 7: 91-159, ill. **Borgmeier, T.**—Attamyia sinonimo de Myrmosicarius (Phorid.). [105] 12:415. **Crampton, G. C.**—The terminal abdominal structures of male Diptera. [5] 48: 79-94, ill. **Dreyer, W. A.**—A simple laboratory method for Drosophila genetics in general zoology. [Ward's Nat. Sci. Bull.] 15: 3-4. **Durand, Hollaender & Houlahan.**—Ultraviolet absorption spectrum of the abdominal wall of Drosophila melanogaster. [Jour. Hered.] 32: 51-56, ill. **Edwards, F. W.**—Mycetophilidae collected by the expedition to Matto Grosso of the Brazilian Zoological Club, in July 1939. [105] 12: 303-314, ill. (*). **Fairchild, G. B.**—Notes on Tabanidae from Panama. [7] 34: 629-646, ill. (*k). A new Acanthocera (Tabanidae) from Central America. [7] 34: 647-648, ill. **Fisk, F. W.**—Deinocerites spanius at Brownsville, Texas, with notes on its biology and a description of the larva. [7] 34: 543-550, ill. **Hull, F. M.**—New American syrphid flies. [40] No. 1151: 3 pp. Some undescribed syrphid flies from the neotropical region. [91] 31: 432-440. (*). **Knutson, H.**—The occurrence of larvae of the stable fly, Muscina stabulans (Zett.), in living nymphs of the grasshopper, Xanthippus corallipes pantherinus (Sc.). [Jour. Parasit.] 27: 90-91. **Malloch, J. R.**—The American genus Paracantha (Trypetidae). [105] 12: 32-42, ill. (k*). **Manis, H. C.**—Bionomics and morphology of the black onion fly, Tritoxa flexa (Ortalid.). [Iowa State Coll. Jour. Sci.] 16: 96-98. **de Meijere, J. C. H.**—Die Larven der Agromyzinen. [101] 84: 13-30, ill. **Middlekauf, W. W.**—Some biological observations of the adults of apple maggot and cherry fruitflies. [12] 34: 621-624. **Rozeboom, Fox & Laird.**—Anopheles (Kerteszia) bellator D. & K., found naturally infected with Plasmodium. [68] 94: 114. **Shaw, F. R.**—Some new species of the genus Sciara from Canada. [4] 73: 174-175, ill. New Sciarinae from Oklahoma and New Mexico. [119] 26: 320-324, ill. (*). **de Souza Lopes, H.**—Sobre o aparelho genital feminino dos "Sarcophagidae" e sua importancia na classificacao. [Rev. Brasil. Biol.] 1: 215-221, ill. **Spencer, W. P.**—Ecological factors and Drosophila speciation [Ohio Jour. Sci.] 41: 190-200. **Teixeira de Freitas & de Souza Lopes.**—Sobre uma nova especie Brasileira do genero "Condylostylus" (Dolichopid.). [Rev. Brasil. Biol.] 1: 27-30, ill. **Townsend, C. H. T.**—New fly parasites of Diatraea in Sao Paulo. [105] 12: 339-341. **Vargas, L.**—Anopheles gabaldoni n. sp. del Est. de Tabasco, Mexico (Culicid.). [Rev.

Med. Mexico] 21: 385-394, ill. Detalles morfologicos poco o nada conocidos de Anopheles Mexicanos. [Ciencia] 2: 66-69, ill. Aedes (Ochlerotatus) rozeboomi nueva especie (Culicid.). [Gac. Med. Mexico] 71: 393-395. Simulium lane portoi n. n. (Simul. y lista de simúlidos mexicanos. [Rev. Inst. Salubridad y Inferm. Trop.] 2: 115-122. Anopheles pseudopunctipennis willardi n. var. (Culicidae). [Rev. Soc. Mexicana Hist. Nat.] 2: 47-49. Nota sobre el papel que se atribuye a los Chloropidae en la Transmision de Enfermedades. [Rev. Medicina Mexico] 21: 306-310. **Wigan, L. G.**—Polygenic variability in wild Drosophila melanogaster. [31] 148: 373-374, ill.

COLEOPTERA.—Bondar, G.—Notas entomologicas du Baja. VII. [105] 11: 268-303, ill. (*). **Chen, S. H.**—Attempt at a new classification of the leaf beetles. [Sinensia] 11: 451-481, ill. Notes on Chinese Eumolpidae [Sinensia] 11: 483-528. (k*). **Darlington, P. J.**—Report on Coleoptera. [Ann. Rep. Dir. Mus. Comp. Zool.] 1940-41: 16-18. **Harpster, H. T.**—An investigation of the gaseous plastron as a respiratory mechanism in Helichus striatus. [Trans. Amer. Micro. Soc.] 60: 329-358, ill. **Helfer, J. R.**—A revision of the genus Buprestis of North America north of Mexico (Buprestid.) [70] 21: 123-198, ill. **Hustache, A.**—Nouveaux Curculionides du Bresil. [105] 12: 131-139. **Kempers, K. J. W.**—Larven van kortschildkwers (Staphylinidae). [101] 84: 31-43, ill. (k). **Knull, J. N.**—Nine new Coleoptera (Plastocerid., Buprestid. & Cerambycid.). [43] 41: 381-388, ill. **Lincoln & Palm.**—Biology and ecology of the alfalfa snout beetle. [Cornell Univ. Agric. Exp. Sta.] Mem. 236: 45 pp., ill. **Malkin, B.**—Additions to the Staten Island List of Coleoptera. [Pro. Staten Island Inst. Arts & Sci.] 9: 91-96. **Pic, M.**—Coleopteres nouveaux de l' Amerique Meridionale. [104] 10: 313-315. (*). **Sauer, H. F. G.**—Importância, distribuição, hospedeiros e inimigos naturais de podador de algodoeiro Chalcodermus bondari (Curc.). [105] 12: 42-45. **Scheerpeltz, O.**—Aus der Praxis des Käfersammlers. XXXVI. Planung, Einrichtung und Aufstellung einer dem Studium der Systematik und zoogeographischer Fragen dienenden Sammlung. [79] 26: 1-14. **White, W. H.**—The Mexican bean beetle. [An. Rep. Smiths. Inst.] 1940: 343-356, ill. **Yuill, J. S.**—Cold hardiness of two species of bark beetles in California forests. [12] 34: 702-709, ill.

HYMENOPTERA.—Atherton, G.—Do bees see in the dark? Minnesota. 1941. 8 pp. **Blanchard, E. E.**—Nuevos parasitos del Bicho de Cesto Oeceticus kirbyi, Guild. [104] 11: 1-21, ill. **Brown, R. W.**—Concerning the antiquity of social insects. [5] 48: 105-110. **Cockerell, T. D. A.**—Observations on plants and insects in northwestern Baja California, Mexico, with descriptions of new bees. [Trans. San Diego Soc. Nat. Hist.] 9: 339-352, ill. **Clausen, C. P.**—The habits of the Eucharidae. [5] 48: 57-69. **Donisthorpe, H.**—Synonymical notes, etc., on Formicidae. [8] 77: 237-240. **Gemignani, E. V.**—Una nueva especie del genero Trypoxylon. (Specoidea). [Rev. Ent. Soc. Argentina] 11: 42-44, ill. **Headley, A. E.**—A study of nest and nesting habits of the ant Lasius niger subsp. alienus var. americanus. [7] 34: 649-657, ill. **Lovell, H. B.**—Ecology of Kentucky flowers: The fifth stamen of Pentstemon canescens. [Ann. Kentucky Nat. Hist.] 1: 15-21, ill. Notes on the habits of Xylocopa virginica. [Kentucky Acad. Sci. Trans.] 8: 38-39. **Mickel, C. E.**—Monograph of the South American mutillid genus Hoplocrates (Mutillid.). [105] 12: 341-414. (k*). **Mitchell, R. T.**—The alimentary tract of Vespula maculifrons Buy (Vespid.). [Ohio Jour. Sci.] 41: 29-38, ill. **Pate, V. S. L.**—A review of the genus Entomocrabro (Sphecid.). [105] 12: 45-61. (k*s). **Rau, P.**—The swarming of Polistes wasps in temperate regions. [7] 34: 580-584. **Smith, C. F.**—A new species of hymenopterous parasite of the pea aphid (Macrosiphum pisi). [7] 34: 537-538. **Snipes & Vanetti.**—Experiencias sobre o combate a formiga sauva, Atta sexdens (Formicid.) [105] 12: 1-32, ill. **Sparks, S. D.**—Surface anatomy of ants. [7] 34: 572-579, ill. **Stahel & Geijskes.**—Weitere untersuchungen uber nestbau und gartenpilz von Atta cephalotes und Atta sexdens (Formicid.). [105] 12: 243-268, ill. **Takeuchi, K.**—A Systematic study of the suborder Symphyta of the Japanese Empire (IV). [Tenthredo] 3: 230-274, ill. (k). **Takeuchi & Tokunaga.**—Morphological study of head and mouthparts of a remarkable Saw-fly, Nipponorhynchus mirabilis Takenchi. [Tenthredo] 3: 275-291, ill. **Walley, G. S.**—Some new and little known Canadian Ichneumonidae. [4] 73: 164-170. **Weber, N. A.**—The rediscovery of the queen of Eciton coecum (Formicid.). [119] 26: 325-329, ill. The biology of the fungus-growing ants. The Barro Colorado Island, Canal Zone, species. [105] 12: 93-130, ill.

SPECIAL NOTICES.—Insect Pests of Farm, Garden and Orchard. By L. M. Peairs. New York. 1941. 549 pp., ill.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being ongest in) are discontinued.

Insects from Northern Korea.—I will collect insects for specialists in certain groups upon their request; very rich fauna; rates reasonable. Address: Mr. Alexander M. Yankovsky, Shuotsu-Ompo, Korea, Japan.

Wanted—Living specimens of the luminous beetle **Phengodes** this summer. E. Newton Harvey, The Biology Dept., Princeton University, Princeton, New Jersey.

Malacodermata (except Lycidae and Cleridae) of the world. Will determine and purchase. Also exchange against Col. or all other insects from Bolivia. Walter Wittmer, Correio 1043, Buenos Aires, Rep. Argentina.

I want to collect Rothschildia, agapema, gulfina and io moths and Texas butterflies for interested persons. Eula Frizzell, R 4 San Benito, Texas.

Wanted—To hear from collectors who desire extra good cocoons of Michigan **Platysamia columbia,** that will emerge June, 1941. W. S. McAlpine, 575 Townsend St., Birmngham, Michigan.

Wanted—Specimens of the genus Trox from North America. Will exchange or determine for duplicate material. Mark Robinson, 231 Cherry St., Sharon Hill, Pennsylvania.

Lepidoptera—From the South, including P. palamedes, T. halesus and E. jucunda to exchange for fauna from other localities. H. W. Eustis, Woodbine Rd., Lakemont, Augusta, Georgia.

Wanted—Egg cases of preying mantids. Correspondence desired with those who will collect. Osmond P. Breland, Department of Zoology. The University of Texas, Austin, Texas.

Wanted—To buy, specimens of bees of the genus **Nomada,** any quantity, especially North American. Quote price, locality. Hugo G. Rodeck, University of Colorado Museum, Boulder Colorado.

Arctic Lepidoptera especially **Noctuidae**—Wanted to hear from collectors who desire the Arctic Species. Have large collection. R. J. Fitch. Lloydminster, Saskatchewan, Canada.

PERU

FAVORABLE OCCASION FOR COLLECTORS AND SPECIALISTS!

I deliver at moderate prices from the unexplored primitive Forest of PERU: Butterflies, Beetles (Ceramb., Curcul. Scar. etc.), Odonata-Dragonflies, Orthoptera, Hymenoptera, Diptera, etc, in first class quality.

Please apply to

PEDRO PAPRZYCKI, SATIPO, PERU, SOUTH AMERICA

THE PAN-PACIFIC ENTOMOLOGIST

A quarterly journal of general entomology published by the Pacific Coast Entomological Society. It features insect problems of the Pacific area but is in no way confined to that region. The systematic and biological phases of entomology are stressed including articles on insect taxonomy, morphology, life history and distribution.

Subscription price $2.00 per yearly volume of about two hundred pages.

A few complete sets of the thirteen back volumes are still available at no increase in price.

Address: California Academy of Sciences
San Francisco, California

Scarce Literature Now Available

Contributions which appeared in the various publications of the Academy of Natural Sciences of Philadelphia often have been unprocurable by students on account of the rarity of separata, which in years past were not retained for sale by the Academy. Nearly all papers published since 1880, however, are now available and can be obtained from the Academy at moderate prices. In addition excerpts of nearly all other papers which appeared in the "Proceedings" or "Journal" since 1860 can be supplied.

Our price lists of entomological and other publications now available will be supplied on request, and information gladly furnished upon any other specially desired publication of the Academy. Supplementary editions of these price-lists, containing a large number of additional titles, are also in preparation.

Academy of Natural Sciences of Philadelphia
NINETEENTH AND THE PARKWAY, PHILADELPHIA, PENNSYLVANIA

ENTOMOLOGICAL NEWS

VOLUME LII, 1941

PHILIP P. CALVERT, PH. D., EDITOR
ASSOCIATE EDITORS:
E. T. CRESSON, JR. R. G. SCHMIEDER, PH. D. V. S. L. PATE

ADVISORY COMMITTEE:

PHILIP LAURENT
CHARLES LIEBECK
J. CHESTER BRADLEY, PH. D.
FRANK MORTON JONES, SC. D.
J. A. G. REHN
JOHN C. LUTZ
MAX KISLIUK, JR.
WM. W. CHAPMAN

PUBLISHED BY
THE AMERICAN ENTOMOLOGICAL SOCIETY,

PHILADELPHIA, PA.:
THE ACADEMY OF NATURAL SCIENCES
LOGAN SQUARE
1941

The several numbers of the NEWS for 1941 were mailed at the Post Office at Philadelphia, Pa., as follows:

No. 1—January	January 23, 1941
" 2—February	February 21
" 3—March	March 12
" 4—April	April 3
" 5—May	May 9
" 6—June	June 16
" 7—July	July 18
" 8—October	October 8
" 9—November	November 6

The date of mailing the December, 1941, number will be announced on the last page of the issue for January, 1942.

INDEX TO VOLUME LII.

(*Indicates new genera, species, names, etc.)

ABBOTT, C. E. Modification of the behavior of dragonfly nymphs with excised Labia 47
Why does Gyrinus circle? 287
AHRENS, C. Dragonflies new to the Mount Desert Island Region, Maine 285
ALEXANDER, C. P. Undescribed species of craneflies from the eastern United States and Canada..... 192
Obituary: M. P. Riedel 268
ANON. Henry Clinton Fall Memorial Publication Fund.. 108
War damage to Entomology 109
The Malaria-carrying Anopheles gambiae 125
Obituary: Dr. Hugo Kahl 150
Obituary: Dr. Lee Abram Strong 187
Tabanidae of Panama 232
BALDUF, W. V. Take offs by prey-laden wasps..... 91
BEARD, R. L. & WALLACE, P. P. Prothetely in Scolytus multistriatus 242
BELL, E. L. Two new species of Hesperiidae from North America 163
On Lerodea telata and tyrtaeus 183
BEQUAERT, J. A new race of Vespula squamosa from Michoacan, Mexico 249
BLAISDELL, F. E., SR. A new species of Coniontis from Nevada 131
BLAKE, C. H. Ants preying on termites..... 38
CADBURY, J. W. Current Entomological Literature: 56, 86, 110, 139, 173, 206, 233.
Review: The Louse, an account of the lice which infest man, their medical importance and control..... 88
CALVERT, A. S. Cardinal feeding on a mantid 85
CALVERT, P. P. Obituary: Katherine Mayo 29
Obituary: F. W. Edwards 30
Obituary: Otto Emil Plath 30

Obituary: Grace Adelbert Sandhouse 30
Obituary: John Pattillo Turner 30
Obituary: Charles William Woodworth 30
Obituary: Samuel Henshaw 90, 241
Obituary: Charles William Leng 90
Obituary: Levi W. Mengel 90
Obituary: Charles Wardell Stiles 90
Obituary: Prof. Myron Harmon Swenk 240
Obituary: Alexandre Arséne Girault 268
Obituary: Charles Branch Wilson 269
Obituary: Prof. Ellison Adger Smyth, Jr. 270
Review: Plant galls and gall makers 117
Review: The embryology of insects and myriapods.... 148
Review: How to make an insect collection 154
Review: Insects and their stories 210
Review: Atlas of the scale insects of North America.. 238
CHAMBERLIN, R. V. Seven new millipeds from Mexico.. 250
CLARK, A. H. The genus Colias in North America..185, 220
CRESSON, E. T., JR. New genera and species of North American Ephydridae 35
Review: Insect pests of farm, garden and orchard.... 259
CRESSON, (see Meiners, E. P. & Cresson, E. T., Jr.)
DAHL, R. G. The Leng types of Cicindelidae.....169, 188
DARLINGTON, P. J., JR. The Insect Collection of Thaddeus W. Harris (1795-1856) 273
DENNING, D. G. Descriptions of three new species of Mexican Chimarrha 83
FISHER, E. G. Notes on Costa Rican Mycetophilidae.... 8
A "Zippered" sweeping net 226
Current Entomological Literature: 19.
FORBES, W. T. M. The early genera of Ithomiinae..... 1
Does he stridulate? 79
Line-elements in butterfly patterns 151
What is Pseudomechanitis? 276
Fox, I. A new Opisodasys from Idaho..... 45

FRANCLEMONT, J. G. Notes on Cuculliinae 201
FREEMAN, H. A. A new species of Amblyscirtes from Texas 50
FRIENDS OF L. W. M. Obituary: Dr. Levi W. Mengel.. 178
FUNKHOUSER, W. D. "Prof. Funkhouser on a Collecting Trip" 275
GILLESPIE, J. Some unusual dragonfly records from New Jersey 225
HARMSTON, F. C. Review: Generic relationships of the Dolichopodidae, based on a study of the mouth parts.. 267
HAYES, W. P. A bibliography of keys for the identification of immature insects, Part II. Odonata.....52, 66, 93
HULL, F. M. Some new syrphid flies from North and South America 157
Some new species of Syrphidae from Florida, Cuba and Brazil 278
IRWIN, W. H. A preliminary list of the Culicidae of Michigan 101
JAMES, M. T. Notes on the nearctic Geosarginae..... 105
JOHNSON, P. H. Some of the Eumolpinae and Chrysomelinae of South Dakota 9
JONES, D. T. Further notes on the snail-collecting Aphislion larva 39
J. S. W. Review: Insect pests of stored grain and grain products, identification, habits and methods of control.. 239
KNIGHT, K. L. A migratory flight of Phoebis agarithe.. 274
KNOWLTON, G. F. Western Aphid notes 136
KNULL, J. N. Two new Texas Buprestidae 98
A new Texas Agrilus 283
LA RIVERS, I. Additions to the list of Nevada dragonflies 126, 155
LEECH, H. B. The dates of publication of two articles on Coleoptera by John L. LeConte, issued in 1845..... 290
LIST, G. M. Obituary: Clarence Preston Gillette 120

MACKEY, L. S. Current Entomological Literature: 19, 56, 86, 110, 139, 173, 206, 233, 260, 292.
MEINERS. E. P. Obituary: Hermann Schwarz 118
Obituary: George W. Bock 119
Obituary: August Knetzger 119
MEINERS, E. P. & CRESSON, E. T., JR. Obituary: Charles L. Heink 119
MOOREFIELD, H. H. Addenda to the Odonata of Maryland 133
O'BYRNE, H. I. The hibernation in Missouri of Zerene caesonia and Euptoieta claudia 181
PATE, V. S. L. Current Entomological Literature: 19, 56, 86, 110, 139, 173, 206, 233.
On two species of Diploplectron from Texas..... 4
A synonymical note on Crabro (Blepharipus) davidsoni 34
On a new subgenus of Pemphilidine wasps from Cuba. 121
PYLE, R. W. Triungulins of a rhipiphorid beetle borne by Elis quinquecincta 74
RAU, P. A population study of a bumblebee colony, Bombus americanorum 70
Cockroaches: The forerunners of termites 256
Migrating butterflies, Libythea bachmanii larvata in Texas 277
REHN, J. W. H. Current Entomological Literature: 292.
RICHARDS, A. G., JR. Current Entomological Literature: 292.
A stenogamic autogenous strain of Culex pipiens in North America 211
ROBINSON, M. A new species of Trox from Texas 134
Notes on some rare Scarabaeidae with the description of one new species 227
ROSS, H. H. Review: The Francis Walker types of Trichoptera in the British Museum 177
SCHMIEDER, R. G. Current Entomological Literature: 233, 292.
Review: Entomophagous insects 116
SMITH, F. A note on noctuid larvae found in ant's nests 109
WAGNER, W. H., JR. District of Columbia butterfly notes 196, 245

WALLACE, (see Beard, R. L. & Wallace, P. P.)
WESTFALL, M. J. Notes on Florida Odonata 15, 31
WILLIAMS, J. L. The relations of the spermatophore to the female reproductive ducts in lepidoptera 61
WILLIAMS, R. C. A list of butterflies which may be found within 50 miles of Philadelphia 217
Review: Butterflies 239
WILLIAMS, R. W. Notes on bionomics of Ataxia hubbardi in Illinois 271

GENERAL SUBJECTS

Bird (Cardinal) feeding on a mantid 85
Bird nests, beetles in 227
Collection in the British Museum of Natural History Damage to Entomological.. 14
Collection of Thaddeus W. Harris 273
Current Entomological Literature: 19, 56, 86, 110, 139, 173, 206, 233, 260, 292.
Dates of publication of two articles on Coleoptera by John L. Leconte, issued in 1845 290
Insect collection, how to make 154
Immature insects, Bibliography of keys 52, 66, 93
Insect Hosts 74, 91, 109
Insect parasites 71
Malaria-carrying Anopheles gambiae 125
Plant Hosts 271
Prey of ants 38
Snail-collecting Aphis-lion larva 39
Sweeping net, Zippered 226
War damage to entomology.. 109

OBITUARY NOTICES

Bock, George W. 119
Edwards, F. W. 30
Gillette, Clarence Preston 120
Girault, A. A. 268
Heink, Charles L. 119
Henshaw, Samuel 90, 241
Kahl, H. 150
Knetzger, August 119
Leng, Charles William 90
Mayo, Katherine 29
Mengel, Levi. W. 90, 178
Plath, O. E. 30
Riedel, M. P. 268
Sandhouse, G. A. 30
Schwarz, Hermann 118
Smyth, E. A., Jr. 270
Stiles, Charles Wardell 90
Strong, Lee Abram 187
Swenk, Prof. Myron Harmon 240
Turner, J. P. 30
Wilson, C. B. 269
Woodworth, C. W. 30

PERSONALS

Fall, Henry Clinton, Memorial Publication Fund 108
Funkhouser (Prof.) on collecting trip 275
Scott, Hugh 138

REVIEWS

Betten & Mosely: The Francis Walker types of Trichoptera in the British Museum 177
Buxton: The Louse, an account of the lice which infest man, their medical importance and control 88
Clausen: Entomophagous insects 116
Cotton: Insect pests of stored grain and grain products, identification, habits and methods of control 239
Cregan: Generic relationships of the Dolichopodidae, based on a study of the mouth parts 267
Felt: Plant galls and gall makers 117
Ferris: Atlas of the scale insects of North America .. 238
Hoogstraal, Martinson & Mohr: Insects and their stories.... 210
Johannsen & Butt: The embryology of insects and myriapods 148
Macy & Shepard: Butterflies 239
Pearis: Insect pests of farm, garden and orchard 259

GEOGRAPHICAL DISTRIBUTION

Alabama: Neur 40
Arizona: Col. 189; Lepid.... 164
California: Col. 9, 172, 191; Dipt. 35; Lepid 167
Canada: Col. 170.
Central America: Dipt. 8, 121, 158, 278; Lepid 183
Colorado: Col. 170, 189.
Connecticut: Dipt. 163
District of Columbia: Lepid. 185, 196, 245
Florida: Col. 170; Dipt. 278; Lepid. 167; Odon. 15,31
Idaho: Siphon 45
Illinois:: Col. 171, 271
Indiana: Neur 39
Louisiana: Col. 171
Maine: Dipt. 37, 194; Odon. 285
Maryland: Odon. 133
Massachusetts: Col. 231; Dipt. 163
Mexico: Hym. 249; Lepid. 164, 274; Neur. 82
Michigan: Dipt. 37
Minnesota: Dipt. 193
Missouri: Lepid. 181
Montana: Col. 188
Nevada: Col. 131, Odon. 126, 155.
Newfoundland: Col. 188
New Jersey: Col. 229; Dipt. 163
New Mexico: Lepid. 165
New York: Col. 172; Lepid. 204.
North Carolina: Neur 40
Ohio: Dipt. 106; Hym. 91; Neur 40
Oregon: Col. 188
Pennsylvania: Col. 229; Dipt. 211; Orth. 85.
South America Dipt. 161, 278; Lepid. 183.....
South Dakota: Eumolpinae and Chrysomelinae 9
Tennessee: Dipt. 196
Texas: Col. 98, 134, 190, 283; Hym. 4; Lepid. 50, 164, 277.
Virginia: Col. 229

COLEOPTERA

Acmaeodera 98
aequalis, Trox 230
Agrilus, Texas 283
Aphodius 231
Ataxia, Bionomics 271
Beetles in birds nests 227
bellissima, Cicindela 188
bowditchi, Cicindela 190
Buprestidae, Texas 98
Chrysomelinae of South Dakota 9
Cicindela 169, 188
Cicindelidae, Types of 169
Cinura 99
Colaspidea 9
confusum, Tribolium 242
Coniontis from Nevada 131
crypta, Ataxia 271
Epilachna 242
Eumolpinae of South Dakota. 9
Fidia 9
flavipennis, Macrosiagon 78
floridana, Tetracha 170
fuliginosus, Trox* 134
gillespiensis, Acmaeodera* .. 98
Gyrinus circle, Why does..... 287
harrisi, Cicindela 190
hentziana, Cicindela 191
Horia 76
horiconensis, Cicindela 172
hubbardi, Ataxia 271
intermedius, Omus 169
knausii, Cicindela 191
lariversi, Coniontis* 131
laticollis, Trox 231
limpiae, Agrilus* 283

longulus, Melanotus 242
ludoviciana, Cicindela 171
Macrosiagon 78
maculata, Horia 76
manitoba, Cicindela 170
manitobensis, Aphodius 231
maricopa, Cicindela 189
Melanotus 242
minor, Cicindela 171
monachus, Trox 134
multistriatus, Scolytus 242
nigerrima, Cicindela 170
novaterrae, Cicindela 188
oblongus, Aphodius 232
obsoletoguttatus, Agrilus 284
Omus 169
oslari, Cicindela 189
Phaedon 9
Phyllophaga 232
postrema, Phyllophaga 232
Prasocuris 9
Rhipiphorid beetle Triungulins 74
Rhipiphorus 76
roburella, Cinura* 99
robusta, Cicindela 190
Scarabaeidae, Notes on and description of 227
Scolytus, Prothetely in 242
sierra, Cicindela 172
simi, Trox 229
solidaginis, Rhipiphorus 76
striatus, Trox 231
suberosus, Trox 228
Tetracha 170
transversa, Cicindela 171
Tribolium 242
Trox 134, 227
tuolumnae, Cicindela 191
tytus, Trox* 228
varivestris, Epilachna 242
vestalia, Cicindela 188
viticida, Fidia 9

DIPTERA

analis, Leia 8
Anopheles 125
Baccha 161
beameri, Merosargus* 107
bergi, Hydrellia* 37
broweriana, Limonia* 193
caerulifrons, Merosargus 107
californica, Helaeomyia* 35
Cephalochrysa 106
Chloromyia 106
Chrysochroma 106
chrysopressa, Planes* 158
Clasiopella 36
clavis, Macrosargus 107
costaricensis, Leia* 8
Crane flies from eastern United States and Canada, Undescribed 192
Culex pipiens, Stenogamic autogenous strain 211
Culicidae of Michigan, Preliminary list 101
cuprescens, Planes* 159
Dicranoptycha 195
Discocerina 35
Dolichopeza 192
Ephydridae, North American 35
flavipes, Discocerina* 35
florida, Volucella* 278
formosa, Chloromyia 107
gambiae, Anopheles 125
Geosarginae, Nearctic 105
Geosargus 106
grisea, Planes* 281
*Helaeomyia** 35
Hydrellia 37
johnsoni, Hydrellia* 37
johnsoni, Mixogaster* 162
Leia (see *Boletina*)
Limonia 193
lucens, Geosargus 107
Macrosargus 107
melanopus, Ptecticus trivittatus* 106
Merosargus 107
metatarsata, Clasiopella 36

Microchrysa 106
*Mimapsilopa** 36
Mixogaster 162
molestus, Culex 215
Mycetophilidae, Costa Rican.. 8
Nothomyia 105
picta, Volucella 278
pictipennis, Platyura 8
pictoides, Volucella* 280
pipiens, Culex 211
Planes 158 281
Platyura 8
polita, Dolichopeza 193
polita, Microchrysa 107
pratti, Dolichopeza* 192
Proceroplatus (see *Platyura*)
Ptecticus 105
Sargus 107
sepia, Baccha* 161
Syrphid flies from North and South America 157
Syrphidae from Florida, Cuba and Brazil 278
Tabanidae of Panama 232
tennessa, Dicranoptycha* 195
tricolor, Sargus 107
valeria, Planes* 282
vittata, Platyura* 8
Volucella 278

HEMIPTERA

Aphid notes, Western 136
Aphis 136
linnei, Tibicen 92
tetradymia, Aphis* 136
Tibicen 92

HYMENOPTERA

americanorum, Bombus 70
Ants preying on termites 38
Bembex 78
Blepharipus 34
Bombus 70
Bumblebee colony, Population study 70
Crabro 34
Crossocerus (see *Blepharipus*)
cyanauges, Ectemnius* 123
davidsoni, Crabro 34
Diploplectron from Texas ... 4
Ectemnius 123
Elis 74
Formica 109
Harpalus 71
herbivagus, Harpalus 71
kantsi, Diploplectron* 6
*Merospis** 121
michoacana, Vespula* 249
obscuripes, Formica rufa 109
parkeri, Blepharipus 34
Pemphilidine wasps from Cuba 121
Psithyrus 71
quinquecincta, Elis 74
speciosus, Sphecius 91
spinolae, Bembex 78
squamosa, Vespula 249
variabilis, Psithyrus 71
Vespula from Michoacan, Mexico 249
vierecki, Diploplectron* 4
Wasps, Prey-laden 19

LEPIDOPTERA

acrisione, Athesis 3
agarithe, Phoebis 274
Amblyscirtes from Texas 50
americalis, Epizeuxis 109
Antigonus 165
apellus, Hesperia 183
Aprotopus 2
arpa, Atrytone 168
astyoche, Pierella 153
Athesis 1
Atrytone 167
behrii, Colias 224
belli, Amblyscirtes* 50
berryi, Atrytone* 167
bimaculata, Atrytone 168
Butterflies found within 50 miles of Philadelphia 217

Butterfly notes, District of Columbia 196, 245
Butterfly patterns, Line-elements in 151
caesonia, Zerene 181
Callimormus 184
celia, Amblyscirtes 51
Ceratinia 276
ceromatica, Pyreferra 204
chrysotheme, Colias 224
citrombra, Pyreferra* 203
claudia, Euptoieta 181
Colias in North America..186, 223
conspicua, Atrytone 168
Crino (see *Mniotype*) .....
Cuculliinae, Notes 201
ducta, Mniotype, Hadena 201
egina, Melinaea 1
elides, Callimormus 184
Epizeuxis 109
eriphyle, Colias 223
Euptoieta, Hibernation in Missouri 181
eurytheme, Colias 186
evansi, Antigonus* 165
graefiana, Scopelosoma 202
guatemalana, Colias 223
hecla, Colias 224
Hesperia 183
Hesperidae from North America 163
hesperidago, Pyreferra, Hoporina 202
Hirsutis 1
indirecta, Xanthia 202
Ithomiinae, Genera 1
kootenai, Colias 223
larvata, Libythea 277
Lerodea 183
Libythea bachmanii larvata migrating 277
limpida, Ceratinia 276
machaonides, Papilio 154
marmorea, Tamphana 79
maxima, Phoebis 274
meadii, Colias 224
Megistias 184
Melinaea 1
mergelana, Ceratinia 276
Metaxaglaea 202
*Mniotype** 201
moffatiana, Scopelosoma 202
Olyras 3
Papilio 154
paradoxa, Ceratinia 276
pettiti, Pyreferra 204
philodice, Colias 186
Phoebis agarithe, Migratory flight 274
Pierella 153
Prepona 153
Psectraglaea 202
Pseudomechanitis (see *Ceratinia*)
pulverulenta, Antigonus, Leucochitonea, Systasea 164
Pyreferra 202
Reproductive ducts (Female) in lepidoptera 61
rumina, Thais 154
Scopelosoma 202
*Sericaglaea** 201
signata, Sericaglaea, Orthosia 201
sommeri, Crino 201
Spermatophore and female reproductive ducts 61
taeniatus, Tagiades 164
Tagiades 164
Tamphana 79
telata, Lerodea, Cobalus, Hesperia 183
telata, Magistias 184
Tellervo 2
Thais 154
Thyridia 1
Tithorea 1
tyrtaeus, Lerodea, Hesperia... 183
Velamysta 4
werdandi, Colias 224
Xanthia 202
zampa, Hesperia 164
Zerene, Hibernation in Missouri 181

ODONATA

Celithemis 225
Bibliography of keys for identification of immature O. 52, 66, 93.
Dragonflies new to the Mount Desert Island Region 285
Dragonfly nymphs, Behavior of 47
Dragonfly records, New Jersey 225
Florida Odonata, Notes.....15, 31
Nevada drangonflies, Additions to list 126, 155
Odonata of Maryland, Addenda to 133
verna, Celithemis 225

ORTHOPTERA

americana, Periplaneta 256
australasiae, Periplaneta 256
Blatta 256
Blattella 257
Cockroaches forerunners of Termites 256
Cryptocercus 257
germanica, Blattella 257
orientalis, Blatta 256
Panchlora 257
Paratenodera 85
Parcoblatta 257
pennsylvanica, Parcoblatta ... 257
Periplaneta 256
punctulatus, Cryptocercus 257
sinensis, Paratenodera 85
virginica, Parcoblatta 257
viridis, Panchlora 257

SMALLER ORDERS

Aphis-lion larva, snail-collecting 39
betteni, Chimarrha* 82
Chimarrha, Mexican 82
darwiniensis, Mastotermes ... 258
enoplus, Opisodasys 45
Hemerobius 39
jellisoni, Opisodasys* 46
keeni. Opisodasys 45
Mastotermes 258
Nodita 39
Opisodasys from Idaho 45
pseudarctomys, Opisodasys ... 45
pylaea, Chimarrha* 84
ridleyi, Chimarrha* 83
robustus, Opisodasys 45
spatiosus (see *robustus*)
Termites, Ants preying on.... 38
Termites, Cockroaches the forerunners 256
vesperalis, Opisodasys 45
virginica, Nodita 39

NON-HEXAPODA

Cleidogona 250
Eurelus 255
hoogstralli, Messicobolus* 254
leonicus, Orthoporus* 252
Messicobolus 254
michoacana, Cleidogona* 251
Millipeds from Mexico 250
nigrior, Spirobolus* 253
nueva, Cleidogona* 250
Orthoporus 252
potosianus, Rhinocricus* 252
Rhinocricus 252
Spirobolus 253
tancitarus, Eurelus* 255

REVISTA DE ENTOMOLOGIA

AN INTERNATIONAL REVIEW OF ENTOMOLOGY

An illustrated magazine published four times a year by **Thomaz Borgmeier, O.F.M.,** devoted to entomology, mainly of the neotropical fauna.

The volumes already published since 1931 comprise thousands of pages and contain articles by leading entomologists such as F. W. Edwards, W. Horn, E. Lindner, J. W. S. Macfie, E. Martini, A. da Costa Lima, F. Silvestri, C. Menozzi, A. Reichensperger, F. Santschi, J. D. Hood, etc., with a bibliography of the current literature (economic and non-economic) of the neotropical fauna.

Annual subscription $4.00 U. S. ($5.00 U. S. through booksellers). All payments are in advance. The back volumes are still on sale; price of each volume $4.00 U. S.; through booksellers $5.00 U. S.

Subscriptions should be sent to the Editor:

THOMAZ BORGMEIER, O. F. M.,

Convento S. Antonio, Largo da Carioca, Rio de Janeiro, Brazil.

MANUAL OF MYIOLOGY (IN TWELVE PARTS)

by Charles H. T. Townsend

Part I. Development and Structure. 1934. 275 pp.
Part II. Muscoid Classification and Habits. 1935. 280 pp. 9 pls.
Part III. Oestroid Classification and Habits. (Gymnosomatidae toTachinidae). 1936. 249 pp
Part IV. Oestroid Classification and Habits. (Dexiidae and Exoristidae). 1936. 303 pp.
Part V. Muscoid Generic Diagnoses and Data (Glossinini to Agriini). 1937. 232 pp.
Part VI. Muscoid Generic Diagnoses and Data (Stephanostomatini to Moriniini). 1938. 242 pp.
Part VII. Oestroid Generic Diagnoses and Data (Gymnosomatini to Stenostomatini). 1938. 427 pp.
Part VIII. Oestroid Generic Diagnoses and Data (Microtropezini toVoriini). 1939. 405 pp.
Part IX. Oestroid Generic Diagnoses and Data (Thelairini to Clythoini). 1939. 268 pp.
Part X. Oestroid Generic Diagnoses and Data (Anacamptomyiini to Frontinini). 1940. 334 pp.
Part XI Oestroid Generic Diagnoses and Data (Goniini to Trypoerini). 330 pp.

Prices and other information may be secured from:

CHARLES TOWNSEND & FILHOS,

Itaquaquecetuba, E. F. C. B., S. Paulo, Brazil.

Years of Service to Entomology

For over one-quarter of a century Ward's Natural Science Establishment has been supplying collectors with:

1. The best of entomological supplies and equipment at the lowest possible prices.

2. A wide variety of specimens accurately determined and carefully mounted.

3. Collections of insects for the teaching entomologist to illustrate life, histories, taxonomy, morphology, economic phases, etc.

WARD'S NATURAL SCIENCE ESTABLISHMENT, inc

The Frank A. Ward Foundation of Natural Science of the University of Rochester

Write for current catalogues and prices of entomological specimens, collections, and equipment.

100 NORTH GOODMAN STREET
ROCHESTER....NEW YORK

NEW Scientific Publications of

THE READING PUBLIC MUSEUM AND ART GALLERY

READING, PENNSYLVANIA

No. 2.—NEW ITHOMIINAE (LEPIDOPTERA: NYMPHALIDAE), by R. M. Fox. 34 pages, 2 plates
No. 3.—REVISION OF THE GENUS SAIS HUBNER (LEPIDOPTERA: ITHOMIINAE), by R. F. d'Almeida and R. M. Fox. 5 pages, 1 plate
} $1.00

Please make all checks payable to THE READING PUBLIC MUSEUM

FOODPLANTS OF NORTH AMERICAN LEPIDOPTERA.

Assembles and condenses these fundamental data for breeders and economic entomologists into a compact form for quick reference. Of value to Experiment Stations, Entomological Societies, Museums, Universities, individual breeders—all interested in Lepidoptera life histories.

Full information on request.

Prices, etc. are as follows:-

Butterfly list,	4 sheets,	About	190	species,	$ .50	
Moth list,	14 "	"	670	"	$2.00	Plus
Total list,	18 "	"	860	"	$2.50	postage.

The lists may be ordered separately or together.

Reliable data wanted on foodplants of North American Lepidoptera for publication.

S. C. CARPENTER, P. O. Box 1344, HARTFORD, CONN.